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The Sod House In Western Kansas.

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THE SOD HOUSE IN WESTERN KANSAS

being

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by

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INTRODUCTION

In the early days of the settlement of Western Kansas, the lack of suitable building material forced the settler, far from civilization, to use the material that was at hand. Buildings constructed of sod were a common sight. There were almost as many ways to build a sod house as there were people to build them, but there were many things that were done in the same general way. The most decisive factors in deciding how the house was to be built, were the needs and ability of the builder.

Today many believe that sod houses can no longer be built, because sod good enough for building purposes can not be found. Some think that the reason for the poor sod is that the prairies are not now trampled as they used to be by the wild animals. Others state that that can not be the reason, for there are more cattle on the grass than there ever were wild animals. These say that the grass is now grazed too closely with the result that it does not have a thick root system. In spite of these beliefs, a sod house was built in 1948 in Rooks County near Codell, Kansas.

Purpose of the Study

The purposes of this study are to show the importance of the sod house in the settlement of the High Plains Region of Western Kansas and how the early settlers adapted themselves to a changed environment and

used the materials at hand to supply their everyday needs. Some of the events concerning the settlement of the country exist, mostly, in the memories of the old settlers. Among these are the construction of the sod buildings, and the purposes for which they were used. It is important that the knowledge of this form of architecture should be written down while men who helped in the construction are still living. The sod house was so common, that in the literature of the period, although a sod house might be mentioned, in general it was not considered necessary to describe the building or tell how it was constructed.

The early settlers, who remember how the old sod house was built, are becoming very scarce. Today, in the far western sections of the state, there now lives a younger group of men who helped to build, what might be called, a modern version of the old soddie. These were built in the present century, using much more lumber than was generally used in the early sod buildings.

Method of Research

The method of research has consisted mostly of personal interviews with old settlers, or with the slightly younger men and women who helped to settle the far western counties of Kansas. Many of these people, who live in a sod house or had lived in one, were located by contacting numerous people and asking them if they knew anything about sod houses, or if they knew anyone who had any information on the subject.

A visit was made to the Kansas State Historical Society at Topeka, Kansas, where old newspapers, clippings, manuscripts, and pictures were

studied for information on the sod buildings. This was followed by letters to every county in the area covered, in an attempt to discover if any of the sod buildings mentioned in the papers were still standing, and to find any others that might have been overlooked. Visits were made to some of these buildings and pictures were taken.

A study was also made of books and periodicals which considered the sod house. These were found to consist mostly of general studies of life in a sod house. These works give some of the details of the construction of a sod house, but generally they are of the hardships in the everyday life of the early settlers. To the knowledge of the author, no comprehensive, parallel study has been made on this subject up to this time.

Area Covered

Sod buildings with the same general features were constructed throughout the High Plains Region. This region is relatively level, with little or no timber, and the climate is sub-humid. It extends in a broad belt across the United States through Texas, Oklahoma, Kansas, Nebraska, and North and South Dakota.[1]

Since it would be a mammoth job to attempt to cover this entire region, the present study has been limited to the sod buildings of the High Plains Region of Western Kansas.

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1. Walter Prescott Webb, The Great Plains ([Boston:] Ginn and Company, [c 1931]), pp. 4-7. Webb is an authority on the geographic conditions of the Great Plains Region.

Conditions Affecting Settlement of the High Plains Region

When the pioneer came to the High Plains region, he found conditions so different from what he was used to that he either stopped at the edge of the High Plains or crossed over them to settle in a familiar environment on the other side. Until the people learned to make adjustments to the new environment, they could not successfully settle on the plains.[2]

The feature, that accounts for the great change in life in the High Plains Region from what it was like east of the Mississippi, is the deficiency of water. This unfavorable condition prevented the growth of trees, so grass has covered the plains. In the sections where there is plenty of rain, is found the tall grass, which has a luxuriant growth and deep roots; in the sections of lighter rainfall, the short grass grows, which forms a heavy carpet of sod with roots that do not go very deeply into the ground; while in the arid sections to the west of the High Plains, the grass grows in tufts or bunches. The amount of rain that falls in this region, is not sufficient to carry on agriculture as it is practiced east of the Mississippi. In the early settlement period, irrigation was not possible for the amount of surface water was not sufficient, and flowing wells could not be dug with the tools that were then available.

The shortage of time forced the pioneer to build his home with the material which was at hand. In this he followed the example

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2. Webb, op. cit., pp. 8-9. All the following information, except that concerning the land acts, has been drawn from this authority.

of that member of the squirrel family, who, when he came to the plains and found no trees to live in, went down into the ground and became known as the prairie dog. Thus man turned to the soil and used the prairie sod to make his home. Timber was not found in sufficient quantity to provide fuel for the settlers, so again they used the material at hand and burned buffalo chips, or in some cases the prairie grass, twisted into bunches to make it burn longer. The timber shortage was also felt in the business of building fences. This problem was relieved in 1874 by the invention of barbed wire, which permitted the farmer to fence large portions of ground at a comparitively low cost.

Other elements which hindered the settlement of the High Plains, were the high winds and the blizzards. In the summer time the winds sometimes brought intense heat which ruined the crops. The high winds were intollerable to many people. In the winter time, the High Plains sometimes witnessed terrible storms of wind and snow. These blizzards were rightfully feared by the early settlers; but the sod house, and especially the lowly dugout, were the settlers best protection. High winds might do some damage to a sod house, but it would be difficult to blow down. The cold winter winds could not penetrate the thick walls, and the sod houses were easy to heat with a small quantity of fuel.

In 1862 the Homestead Act was passed by which the settler could obtain 160 acres of land after he had lived on it for five years, cultivated the land, and paid fees amounting to twenty-six dollars. One objection to the Homestead Act was that it was not suitable to the

conditions on the Plains.[3] Settlers discovered that with only 160 acres they could not raise enough crops to afford to live in anything but a sod house. By the Pre-Emption Act, an additional 160 acres could be obtained by living on the land and cultivating it, then when the allotted time had passed, pay the government a set sum for the land.[4] A sod house was an inexpensive means of complying with the regulations.

Some people believed that belts of trees, if planted across the High Plains, would break up the winds and there would be less evaporation. To encourage the planting of trees, the Timber Culture Act of 1873 permitted the farmer to obtain an additional 160 acres by planting and caring for ten acres of trees, and the payment of fees amounting to eighteen dollars. After eight years, he could obtain title to the land, if at least six hundred and seventy-five trees were growing on each acre.[5]

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3. Henry N. Copp, The American Settler's Guide: A Popular Exposition of the Public Land System of the United States of America (Washington, 1882), p. 26

4. Ibid., p. 59. Mention is also made in Webb, op. cit., p. 379.

5. Copp, op. cit., pp. 70-71.

CHAPTER II

THE SOD HOUSE

Materials Used

In building a sod house, the first requirement was to locate a patch of good thick virgin sod on soil which was not sandy.[1] A few of the early settlers recommend blue-stem sod, which might be found in the low places--draws and sloughs.[2] Blue-stem grass was not plentiful in Western Kansas, and that was quite valuable for hay, so most of the houses were built of buffalo grass, and most of the settlers recommend its use. The short buffalo grass had a thick, tough root system that holds the earth together.[3] Some recommend cutting the sod on the top of hills to be sure the soil is not sandy, while others recommended the grass near buffalo wallows, for there the grass would be thicker, and the ground would usually be tougher, containing more clay.[4]

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1. Letter from W. Henry Cox, Hanston, Kansas, November 12, 1949; Interview with George F. Sternberg, Hays, Kansas, March 1, 1950; Letter from George C. Derby, Sublette, Kansas, February 20, 1950.

2. J. S. Bird, Prairies and Pioneers (Hays, Kansas: McWhirter-Ammons Press, 1931), p. 9; Interview with John Lingenfelder, Hanston, Kansas, November 5, 1949; Letter from Mrs. John W. Johnson, Herndon, Kansas, March 17, 1950. Others who preferred blue stem are: Claude Constable, "History of Rawlins County," Microfilm Department, Kansas State Historical Society Library, p. 12; Letter from Frank Swink, Hugoton, Kansas, February 20, 1950.

3. Letter from Mrs. Benj. O. Weaver, Mullinville, Kansas, February 20, 1950; Pearl Toothaker, "Sod Houses in Sheridan County," typed manuscript: Letter from Cox; A. B. Macdonald, "Manuscript," Kansas State Historical Society Library; Margaret Whittemore, "People Can Live in Grass Houses," Nature Magazine (January, 1943), p. 37.

4. Letter from R. S. Smith, Hugoton, Kansas, March 27, 1950; Letter from Miss Lura S. Smith, Meade, Kansas, March 17, 1950.

Good tough sod was difficult to plow and might require as many as six horses to pull a sod breaker plow.[5] This probably was a deciding factor in the depth to which the settlers plowed the sod for building purposes.

The breaking plow was the most popular plow used by the early settlers. Some of the plows had a sharp cutting colter attached in front of the plow share, this was a steel wheel which cut the sod with a smooth edge, other plows had a small half disk attachment on the share.[6] There was also a gage wheel or rod in the front which regulated the depth of the share.[7] The breaking plow had a long moldboard that turned the sod over without breaking it.

Another type plow was the rod breaker which had rods in place of the moldboard. This was a much lighter plow and was called the "grasshopper plow" or "heel burner." This plow pulled easier, but some objected to it for, if it were slightly dull, it would jump out of the furrow easily; nor did it plow as deep as the sod breaker. It could be fitted with a cuter fin on the share. Another objection to the rod breaker was its tendency to break the sod as it was turned over.[8]

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5. Interview with H. John Baldrey, Hanston, Kansas, February 4, 1950.

6. A. B. Macdonald, op. cit.; Letter from William J. Querbach, Lancaster, California, February 20, 1950.

7. Interview with Thornton W. Wells, Hays, Kansas, February 9, 1950; Interview with William J. Querbach, Hanston, Kansas, November 23, 1949.

8. Interview with W. J. Querbach; The plow was referred to as a "heel burner" in a letter from Mrs. Benj. O. Weaver.

Sod Breaking Plow

This picture shows the long moldboard of the sod breaking plow. It also has a cutting disk attached to the front of the plow share. The small wheel in the front is the rolling colter, the gage wheel which could be set to adjust the depth to which the ground would be plowed. This was the plow most commonly used by the early settlers. It was a heavy plow. This one does not have the handles attached. This plow is the property of the Fort Hays Kansas State College Museum. (Picture taken April 12, 1950.)

Rod Breaker Plow

This plow became popular with the early settlers because it was much lighter in weight than the Sod breaking plow. Rods have replaced the heavy moldboard. There is a cutter fin attached to the plow share. In the front is shown the rod attachment by which the depth of the plowing could be adjusted. The plow pictured below has a straight plow share. These plows are the property of the Fort Hays Kansas State College Museum. (Pictures taken April 12, 1950.)

To overcome the objectionable features of the plows, a sod cutter was invented. This was a steel blade in the shape of a "U" attached to two runners. One of the runners was set three or four inches higher than the other and it ran on the uncut sod. The other runner ran in the furrow from which the sod had been cut. It was necessary to plow one furrow with a regular walking plow before starting with the sod cutter. The two runners were set as far apart as the desired width of the sod bricks, which varied from twelve to sixteen inches. This sod cutter did not turn the sod over, thus eliminating breakage, and the strips were an even width and depth. Only one row of sod could be cut at a time, after it was taken up the next row could be cut.[9]

When using the sod plow or the rod plow, the settler frequently plowed a small patch of ground, then cut the strips into the desired length to use.[10]

If the settler owned neither horses nor a plow, and could not borrow or hire the use of them, he could cut the sod with a spade.[11] This would be a difficult job and would probably result in a poorly constructed house.

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9. Interview with Everett Rumford, Dodge City, Kansas, November 4, 1949; Interview with C. V. Glaze, Hays, Kansas, February 2, 1950; George Rainey, No Man's Land, The Historic Story of a Landed Orphan (Enid, Oklahoma, 1937), pp. 123-124; Letter from Jesse L. Tetters, Goodland, Kansas, January 27, 1950; Letter from Mrs. J. S. Lupton, Cimarron, Kansas, February 21, 1950, Mrs. Lupton gives the width cut by the sod cutter as nine inches, and two inches deep.

10. Letter from Derby.

11. Letter from Dr. Galen R. Hickok, Brownsville, Texas, March 26, 1950. Dr. Hickok was an early settler in Grant County, Kansas.

The Sod Cutter

This was not a regular plow, but was used only to cut sod for building purposes. The width the runners were apart determined the width of the strip of sod. This cutter was built by Martin Lovin to cut the sod to build a house for his son-in law, Leonard Ramsey, of Codell, Kansas. (Picture and information provided by Paul R. Cobb who visited the Ramsey family on June 1, 1949.)

The type of wood that was used by the early settler in building the sod house depended on the time at which the construction of the building was undertaken, and the accessibility to the railroads or to lumber mills. The very early settler, or one who was far from the railroads and mills, used the material that was available--timber from the nearest stream. A large tree was cut for the ridge pole, the length of this pole sometimes decided the length of the house. Smaller poles were used for rafters, and the sheathing consisted of willows, brush, or even corn, sorghum or sunflower stalks. Split poles were used to make the door and window frames.[12] If windows and lumber for doors could not be purchased, hides, blankets, or canvas were hung over the openings.[13]

The settler who built his sod house after the railroads had been built into the country making lumber more accessible, or who lived near a saw mill, used lumber instead of logs. Heavy timbers were used for the rafters, then 1 x 12 inch boards or shiplap were used for sheathing, while 2 x 6, or 2 x 8 inch boards were used in framing windows and doors. The doors were usually made of wide planks. In some cases, floors were also made with the wide planks.[14]

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12. Bird, op. cit., p. 9; S. D. Butcher, Sod Houses . . . (Kearney, Nebraska: The Western Plains Publishing Company, 1904), introduction; Letter from W. A. Cressler, Hoxie, Kansas, February 21, 1950; Interview with T. W. Wells; Interview with Lingenfelder.

13. Adolph Roenigk, Pioneer History of Kansas (Denver: Great Western Publishing Company, c 1933), p. 303; Everett Dick, The Sod-House Frontier . . . (New York: D. Appleton-Century Company, 1937), p. 114.

14. George Rainey, op. cit., p. 124; Letter from Willie Terrell, Logansport, Indiana, February 16, 1950, formerly of Graham County, Kansas; Mrs. John Cole, "The Kansas Soddy" typed manuscript; Letter from Merlyn E. Beougher, Gove, Kansas, February 17, 1949; Constable, op. cit., p. 12.

Preparing the Sod

The condition the sod was in at the time it was plowed determined to a great degree the smoothness with which the strip of sod turned over, with or without breaking, and the final condition and strength of the walls. The majority opinion seemed to be that the sod should be moist, as it was then easier to plow, and could be handled with less breakage than if it were too dry. Some stated that the best time to plow for building was when the sod was thoroughly soaked by rain or snow. One of these also recommended the thickness of the sod to be two and a half inches which would break easier than a thicker piece of sod, this fact might account for the desire for moisture. This wet sod would settle quite a bit as it dried.[15] Another individual recommends that the sod should be dry and hard, so that it could be packed into the wall solid as it was built, this would make a compact wall that would not settle.[16]

The consensus of opinion seems to be that the grass should not be very high when the sod was cut for building purposes, but some thought that it was best when the grass was green and growing.[17] One reference told of burning the grass off before the sod was plowed.[18]

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15. Howard Ruede, Sod-House Days . . . edited by John Ise (New York: Columbia University Press, 1937), pp. 28-29; Letter from H. C. Frazier, Protection, Kansas, February 19, 1950.

16. Interview with W. Henry Cox, Hanston, Kansas, November 6, 1949.

17. Interview with Charles I. Housman, Jetmore, Kansas, November 24, 1949; Interview with W. J. Querbach; Interview with Mrs. Odella Rumford, Dodge City, Kansas, November 4, 1949.

18. "Phillips County, Clippings," Vol. 2, Kansas State Historical Society Library.

There is a great deal of conflicting opinion as to the size of the sod bricks. They ranged in depth from two and one half inches to six inches, in width from eight inches to eighteen inches, and in length from eighteen inches to three feet. Some of this difference was a result of the type of plow used, the way in which they were laid up in the wall, and the desired thickness of the wall. Some of the thicker sods were also cut narrow so they wouldn't be too heavy to handle. The width of the plow share and the number of teams of horses or oxen available for pulling the plow also had an effect upon the size of the strips that were plowed. The average size was four inches thick, twelve inches wide, and twenty-six inches long.[19]

After the strips of sod were plowed, they were cut into the desired length with a sharp straight edged spade. Sometimes a mark was made on the spade handle to measure the sods, or a board, cut to the desired length for the sods, was laid on the row to measure the sod which was then turned over onto the board on which it was carried to the building site and there turned over on to the wall. This method helped to prevent breakage since it required a minimum amount of handling.[20] If the sod was some distance from the building site, it was loaded on the running gears of a wagon on which planks had been laid,

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19. This information is drawn from the many letters and notes on interviews now in the possession of the author.

20. Interview with Mrs. Odella Rumford; Interview with Lingenfelder; Letter from Frank Swink; Letter from Derby; Letter from Cox. It was possible to lift a strip of good moist sod by one end and carry it some distances without its breaking.

or a sled, and carried to the spot where it was to be used.[21] Sometimes the sod was rolled up like a carpet and carried to the building site where it was cut into the desired length.[22] If the builder did not own a team or wagon, the sod could be carried on a litter or hand barrow.[23]

The site of the sod house was frequently chosen to obtain natural shelter from the wind, and with access to water.[24] If the house was near a creek, instead of a well being dug, a water barrel might be sunk in the ground near the house. This barrel would then be filled with water from the creek.[25]

Construction of the Outside Walls

It was important that the foundation of the wall be level. The sod bricks were placed in the wall with the grass side down. As a general rule, the round of sod was started at a corner, but a few

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21. Constable, op. cit., p. 13; William D. Street, "The Victory of the Plow," Collections of the Kansas State Historical Society, IX (1906), p. 38; Pearl Toothaker, "Sod Houses in Sheridan County," a typed manuscript; Cass G. Barns, M. D., The Sod House (Madison, Nebraska: Cass G. Barns, 1930), pp. 59-60; Dick, op. cit., p. 113. Barns and Dick use the term float. This was made of planks or the forks of a tree.

22. Letter from Willie Terrell; Letter from Mrs. Mamie Volker, Zenith, Kansas, January 31, 1950; "Stafford County, Clippings," Vol. I, p. 163, in the Kansas State Historical Society Library; Whittemore, op. cit., p. 37.

23. Ruede, op. cit., p. 39.

24. "Kansas Description, Clippings," Vol. I, p. 170, in the Kansas State Historical Society Library.

25. Catherine Wiggins Porter, "Building a Kansas 'Soddy' -- 1885," edited by Kenneth Wiggins Porter, The Kansas Magazine (1942), p. 18.

designated the door as the place to start laying the sod. The width of the wall depended upon the width of the sod as it was cut by the plow, and upon whether the builder wanted one or two sods width to the wall. Generally the walls were of a double thickness of sods, this would make the walls from twenty-four inches to thirty inches thick. The thickness of a few walls was given as being three feet thick.[26] One wall was described as being built of bricks nine by eighteen inches, which made a wall of eighteen inches.[27]

To make sure that the corners were square, a 6 x 8 x 10 foot right triangle was usually constructed in each corner. It was also important that the walls be built up straight, otherwise the wall would lean and it would be necessary to prop it up with a pole to keep it from falling.[28]

There were several methods of laying up the sod in the walls. Some laid the first row lengthwise, then the second row crosswise,

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26. Interview with Miss Martha Massie, Colby, Kansas, January 16, 1950; Letter from Mrs. Mamie Volker; S. D. Butcher, op. cit., introduction; William E. Connelley, editor, "Life and Adventures of George W. Brown," Collections of the Kansas State Historical Society, XVII (1928), p. 119; William Henry Haupt, "History of the American Church, Known in Law as the Protestant Episcopal Church, In the State of Kansas," Collections of the Kansas State Historical Society, XVI (1925), p. 400. The Massie house is still standing and was lived in until the winter of 1948. A newspaper account gives the thickness of the walls of the Volker house as being four feet, "Stafford County, Clippings," Vol. I, p. 163.

27. Letter from Mrs. Lupton.

28. Bird, op. cit., p. 9; Interview with Mrs. Eva McGimsey, Hays, Kansas, February 20, 1950; Interview with W. J. Querbach; Interview with H. John Baldrey.

tying in the corners and breaking the joints.[29] A suggestive drawing of this method is shown in figure one on the next page.

Another method was to lay the first rows lengthwise, the joints in the outside row being kept ahead or behind the joints in the inside row. The next layer of sods was laid crosswise of the first layer being sure to break the joints and tie the corners.[30] This is shown in figure two on the next page.

Still another method was to lay all the rows of sod lengthwise being sure to break the joints, then occasionally laying a row of sods crosswise to tie them in.[31] A suggested pattern that could have been used is shown in figure three on the next pages.

Still another method was to lay all the sods crosswise of the wall, making sure to break the joints and bind the corners.[32]

After each layer of sod was laid, the sod was leveled with a sharp spade, and all the cracks filled with loose dirt. If the layers were tamped down as they were built, there should be little settling of the wall.[33] An open space of the desired width was left for the

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29. Constable, op. cit., p. 13; Porter, op. cit., p. 17; Interview with Cox; Letter from Cressler.

30. Bird, op. cit., p. 10; Interview with L. W. Hubbell, Jetmore, Kansas, November 4, 1949.

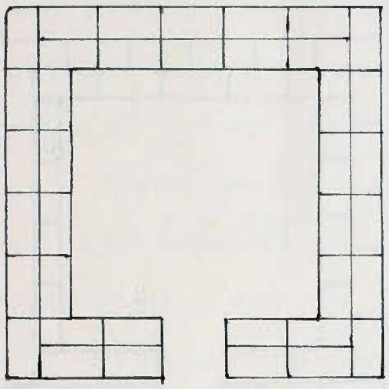
31. Letter from A. E. Elias, LaCrosse, Kansas, February 9, 1950; Interview with W. J. Querbach. In some cases it was recommended that every third row should be laid crosswise to bind the wall, Dick, op. cit., p. 113.

32. Ruede, op. cit., p. 28.

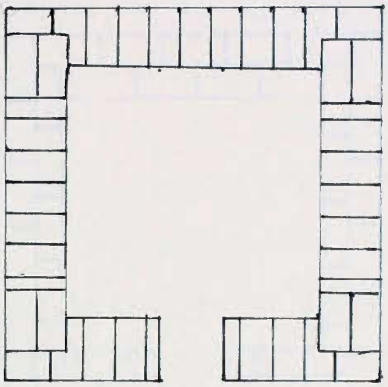
33. Interview with Cox; Interview with W. J. Querbach.

Patterns for Laying Sod

Pattern 1



First layer



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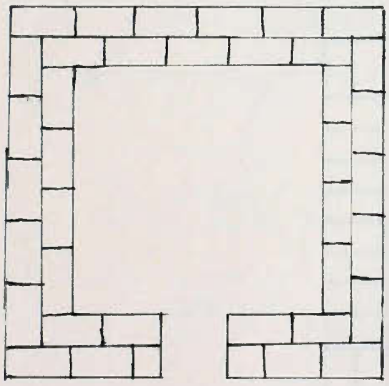

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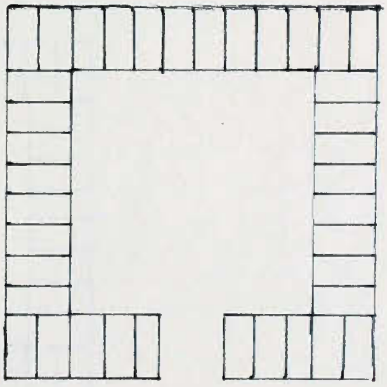
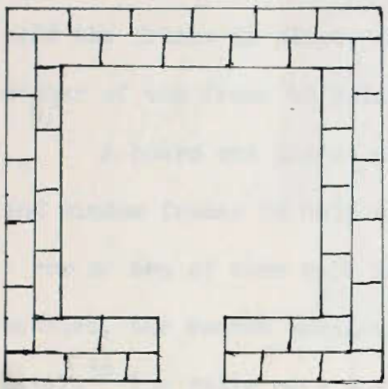


Second layer

Patterns for Laying Sod
(Continued)

Pattern 3



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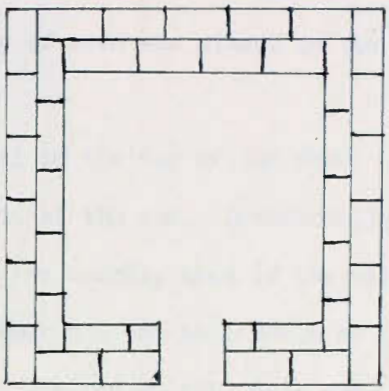

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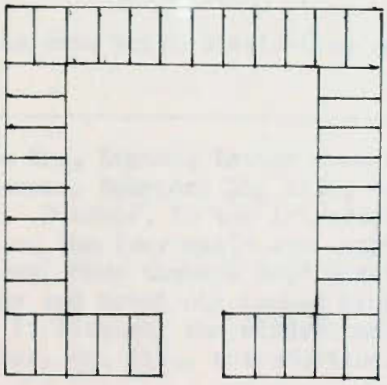

Third layer

door, and after the wall had been built up to the height of the lower part of the window, a sill was placed in the wall and above this the window frame. The sod was laid up against the frames.[34] In some cases large nails or bolts protruded through the frames into the walls to hold the frames in place, or an extra strip of wood was placed in the center of the frame to hold it in place.[35]

A board was placed above and parallel to the top of the door and window frames to help support the weight of the sod. Occasionally a row or two of sods were laid between the two boards, then if the wall settled, the boards would come closer together but the wall would be level.[36] The walls were continued up to the desired height, this was approximately seven feet to the square of the wall; then the gable ends of the building were continued higher, being about two foot higher in the center where the ridge pole was to be placed.[37] Care was taken that the walls were built straight up on the inside. After

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34. Letter from Mrs. Lupton; Letter from Frazier; Letter from W. M. Parham, Logan, Kansas, February 14, 1950; Barns, op. cit., p. 60; Dick, op. cit., p. 113. Butcher, in the introduction to his work, states: "When rightly constructed the four walls are carried up solid to the tops of doors and windows, then timbers laid across where they are to be located, building the sod about six inches higher than the building is designed to be when it settles, the windows and doors are then cut the proper size." Butcher, op. cit., introduction.

35. Letter from Frank Swink; Letter from Cox; Bird, op. cit., p. 10.

36. Interview with Wells; Interview with W. J. Querbach; Rainey, op. cit., p. 124.

37. Letter from Frank Swink; Bird, op. cit., p. 10; Ruede, op. cit., pp. 28-29; Letter from Beougher.

View of a Sod Wall

This shows how the sod was laid in the wall. This wall was plastered at one time, which is shown by the remains of plaster hanging to the wall near the roof. Although the corners had fallen out of the wall, most of the side walls are still standing. This ruins is located beside the highway U. S. 83 between Elkader and Scott City.

The sods in this wall were about six inches thick and about twenty inches wide. (Picture taken January 21, 1950.)

the walls were completed, a sharp spade or ax was used to trim down the inside of the wall.[38] In some cases, especially those walls that were three feet thick, the outside of the wall was also trimmed, but was trimmed sloping so the top of the wall was narrower than the bottom.[39] This is illustrated in the picture on the next page.

In some instances a mortar of mud, gyp, or fine soil was used to bind the sods together, and to help keep out the mice.[40] The house was sometimes plastered on the outside.[41]

Some houses were built of only one thickness of sod.[42] This was especially true after the sod cutter came into use, for by using it instead of a plow, the sods were of even thickness and width. They were also wider as a rule. Larger pieces of sod made a stronger wall than many small pieces would make.[43]

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38. Macdonald, op. cit.; Interview with Hubbell; Interview with W. J. Querbach; Interview with Lingenfelder who suggested that they used a corn knife to even the walls.

39. Interview with Claude Miller, Ness City, Kansas, November 4, 1949; Letter from Cressler; Connelley, op. cit., p. 119; Ruede, op. cit., p. 28.

40. Interview with Everett Rumford; Street, op. cit., p. 38; "Kansas Reminiscences, Clippings," Vol. 4, pp. 123-25, Kansas State Historical Society Library; "Scott County, Clippings," Vol. 1, p. 74, Kansas State Historical Society Library.

41. Interview with Mrs. Lena Rittenhouse, Hanston, Kansas, November 25, 1949; Toothaker, op. cit.

42. Letter from W. F. Hughes, Stockton, Kansas, February 11, 1950; Letter from Frank Swink; Interview with Everett Rumford; Interview with Mrs. Ellen J. Querbach, Hanston, Kansas, February 4, 1950; Rainey, op. cit., p. 124; "Kansas Description, Clippings," Vol. 1, p. 181-183,

43. Interview with Sternberg.

Sod House in Hodgeman County

This picture was taken in 1909, but the house had been built many years before that time. It was the former home of Sam Moore who lived northwest of Jetmore, Kansas. One half of the roof is covered with tin, the other half with sod. Sod has been built around the stove pipe. The walls of this house have a decided slope on the outside. The sod has been plastered around the door and windows to keep it cleaner by preventing the sod from being broken. Flowers can be seen through the window. (Picture and information provided by a sister of Sam Moore, Mrs. Odella Rumford, who lived in this house for several years. Mrs. Rumford now lives in Dodge City, Kansas.)

The weakest spot in the wall was the corners. Great care needed to be taken to make the corners strong and have the sods tied in. One instance was cited of a man's placing rocks in the corners to protect them from being rubbed down by the cattle.[44] Others told of molding the corners on the outside, sloping them in toward the top, by placing logs against the corners to pack them together firmly.[45] Sometimes willows or hickory withes were driven down into the wall as a reinforcement.[46]

Construction of the Roof

After the walls had been completed and the gables built up to the desired height, the ridge pole was placed extending from the center of one gable to the other. Sometimes this tree extended a foot or two beyond the end walls.[47] If a tree could not be found which was long enough to extend the full length of the building, two trees could be bound together to form the ridge pole. In this case a support would probably be necessary. If the roof was quite long, a support might be necessary in the center to help hold up the weight of the roof. If there was no partition, this support would consist of a forked tree set on the ground with the ridge pole resting in the fork. In some

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44. Interview with Sternberg.

45. Interview with H. J. Baldrey; Interview with Lewis F. Baldrey, Jetmore, Kansas, November 24, 1949.

46. Dick, op. cit., p. 113.

47. Interview with Wells.

Sod House Ruins

This was the home of Axtel Anderson who came from Sweden. He lived in this house until his death about fifteen years ago. Since then the house has been deserted. It is believed to have been built in the eighties. It is located in a draw east of highway U. S. 83 north of Scott City.

The walls have been badly damaged by cattle rubbing against them. Part of the wall has been reinforced with stone. Stones have been placed on the roof to hold the tin in place. The long board placed in the wall above the door, and those under the rafters, can be seen in places. (Picture taken January 16, 1950.)

cases supports of forked trees were also placed next to the walls at each end of the ridge pole.[48] Smaller logs or split logs were then laid from the ridge pole to the side walls as rafters. Across the rafters, parallel to the ridge pole, small willows or brush were placed quite thickly, then the layer of sod was placed on top with the grass side down.[49] Some placed straw, hay or grass on top of the willows or brush before the layer of sod was added.[50] One instance was given of canvas being placed under the sod to prevent the dirt from falling into the house.[51] In case willows or brush were not plentiful, corn stalks, sorghum stalks, or even sunflower stalks could be used. Straw, hay or grass could then be added to help hold the dirt, then the sod was laid.[52]

Most of the early settlers recommend one good layer of sod covered with sand, fine dirt, or marl; but some recommended two layers of sod, the top layer covering the joints of the bottom layer, then clay or some other covering added.[53] The sods for the roof were generally thinner than the sods used in building the walls. Some instances were given in which the roof sods were trimmed off on one side and laid

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48. Ruede, op. cit., p. 29; Dick, op. cit., p. 113.

49. Letter from Parham; Letter from Cressler; Interview with Mrs. McGimsey; Interview with W. J. Querbach; Interview with Miller; "Kansas Reminiscences, Clippings," Vol. 4; Bird, op. cit., pp. 10-11.

50. Mrs. Cole, op. cit.; Interview with C. I. Housman; Interview with W. J. Querbach; Dick, op. cit., pp. 113-114; Barns, op. cit., p. 61.

51. "Phillips County, Clippings," Vol. 2.

52. Ruede, op. cit., p. 29.

53. Interview with Lingenfelder; Butcher, op. cit.

overlapping like shingles, this would help to shed the rain.[54] The sod roof had very little slope, for if it were too steep the sods would wash off. Occasionally the roof was built sloping in only one direction, in which case no ridge pole was necessary. The rafters were placed from one side wall to the other. A house with this type of roof was sometimes referred to as a "shanty."[55]

If sawed lumber was used in constructing the roof of the sod house, large planks, sometimes 2 x 12 inch timbers were used as rafters. These pieces were set edgewise in the sod walls. Usually there were two other rafters laid parallel to the ridge pole and midway to the side walls. To prevent them from settling, the rafters rested on boards placed in the walls.[56]

Boards could then be placed from the ridge pole to the side walls. Narrow strips of lumber were sometimes placed over the cracks between these boards to prevent leaks.[57] In many cases the boards were bowed over the rafters making a roof which looked like a railway box-car. If this type of roof was built, the width of the house was limited to about sixteen or eighteen feet by the length of the boards.[58] The boards extended over the walls forming eaves to protect the walls from

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54. Interview with Cox; Macdonald, op. cit.

55. Mrs. Toothaker, op. cit.

56. Interview with W. J. Querbach; Interview with H. J. Baldrey; Rainey, op. cit., p. 124.

57. Interview with Mrs. McGimsey; Interview with Glaze.

58. Interview with Everett Rumford; Interview with Sternberg; Letter from Frank Swink; Constable, op. cit., p. 12.

Sod House in Ellis, Kansas

This sod house was formerly located in Ellis, Kansas, where the Baptist Church now stands. It is not known exactly when this house was built, but the man pictured in front of his home came to Ellis about 1868 or 1869.

The house may have been partly dugout, but the picture shows that dirt has been piled around the walls. This was frequently done so the rain water would run away from the house walls. The roof of this house slopes only one way, therefore no ridge pole was necessary, only rafters that extended the width of the house were needed. The window is the half window that was generally used in the early houses. The door is homemade of wide boards. (Picture and information concerning the house, supplied by Howard C. Raynesford, Ellis, Kansas.)

Supports in the Wall

This picture shows the boards that were placed in the wall under the ridge pole and rafters to prevent their sinking into the sod. It also shows the long boards that were placed above the windows to help distribute the weight of the sod. This wall was constructed in 1900 and is still standing, but it has been necessary to provide additional supports. Long boards have been braced against the wall. This is the back view of the former George Massie home located about ten miles south of Colby, Kansas. (Picture taken January 16, 1950.)

the rain. The boards could be bowed into shape by placing rocks on the roof.[59] After the boards were laid, they were covered with a layer of tar paper, this was really a heavy tarred felt.[60] Sod was then placed on top, staring at the outside edge of the roof.[61] To help prevent leaks, the sod was sometimes covered with two or three inches of shale or a native lime which was often called magnesia, chalk or clay.[62] Sometimes a strip of sod was placed around the edge of the roof, then the rest of the roof was covered with dirt about a foot thick.[63]

When the covering on the sod on the roof washed off, it was necessary to replace it. If the roof was kept in repair, resodding would not be necessary.[64] Some people recommended a double layer of sod on the roof. One suggested that they laid the sod on the roof grass side up so the grass would grow and form a mat to shed the water.[65] Another told of laying the first layer grass side up, then the next

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59. Interview with Sternberg.

60. Letter from Dr. Hickok.

61. Ruede, op. cit., p. 29.

62. Interview with Mrs. Rumford; Interview with Hubbell; Interview with H. J. Baldrey; Interview with W. J. Querbach; Interview with Mrs. McGimsey; Interview with C. I. Housman; Letter from Parham; Mrs. Cole, op. cit., Porter, op. cit., p. 18.

63. Letter from Dr. Hickok; Letter from Miss Smith.

64. Martha Massie stated that their roof had never been resodded. Part of the house was built in 1893, and part in 1902. The sod roof was replaced in 1935, and did not leak except when the sod was blown off around the edges of the roof.

65. Interview with Mrs. Rumford; Interview with Everett Rumford.

House Being Constructed

The picture shows Mr. and Mrs. Leonard Ramsey, with the help of their children, laying sod on the roof of their sod house which was built in 1948. Martin Lovin is lifting the sod from the running gears of a wagon. The boards were covered with tar paper, sod was placed on top to provide weight and help to make the wall firm and solid. (Picture provided by Mr. Ed Frank, Hays, Kansas, information from The Ellis County News, May 20, 1948.)

layer grass side down.[66] Regardless of which way the sod was laid, unless the roof was covered with some material that would form a hard cover on top, the roof would be covered with weeds and growing plants during wet weather.[67] One account states that the garden roof of a sod house covered with blooming flowers in the spring and early summer, was a beautiful sight.[68]

The hip roof was a type of construction that was seldom used on sod houses. It sloped on all four sides, but the ends sloped up only a short distance, it did not come to a point in the middle.[69] A picture of a house with this type of roof is shown on the next page.

If the settler feared that the strong winds of Western Kansas might unroof his home, precautions were taken to anchor the roof. In this case a roof plate could be placed on top of the sod walls. These consisted of 2 x 6 inch or 2 x 8 inch planks. Holes were bored along the center of the plates, and through those holes, one or two foot long wooden pegs or iron bolts could be driven down into the sod of

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66. Letter from Derby.

67. Interview with Mrs. Rumford: Whittemore, op. cit., p. 37; Dick, op. cit., p. 114; Mrs. Toothaker, op. cit.; Jeff Jenkins, The Northern Tier; or Life Among the Homestead Settlers (Topeka, Kansas: Geo. W. Martin, Kansas Publishing House, 1880), p. 149.

68. Kansas City Star, July 18, 1935.

69. Butcher, op. cit., p. 12, shows a picture of a sod house with a sod roof built in this manner. Robert T. McGrath, Hays, Kansas, January 27, 1950, told of living in a house when he was a young boy, which had a roof built in that manner, although this house was not in Western Kansas.

Sod House in Phillips County

This house has a roof of the hip type, although it is a shingled roof and not of sod. This is the home of Hilda Meyer southwest of Phillipsburg, Kansas. Some of the stucco has come off the house, showing the sods beneath. This house was built about 1894. (Picture and information provided through the courtesy of Paul R. Cobb, Hays, Kansas.)

the walls.[70] One instance was recounted in which, after placing on the roof boards, 2 x 4 inch boards were placed on top of the roof above the roof plate and the bolts run through them, then nuts screwed on the bolts.[71]

It was possible to use material other than sod for a roof covering. Some people thatched their roofs with bundles of cane. It was sometimes necessary to replace this thatch.[72] In some instances strips of tin were used as roofing material.[73] When lumber, and money, became more plentiful, some sod houses were covered with shingled roofs. A good roof would help to protect the walls from the weather and prolong the life of the house.

One problem which had to be solved by the settlers, which, though not a part of the roof was an addition to it, was the chimney. This usually consisted of a piece of stove pipe stuck through the roof. It was necessary to protect the wood in the roof from the danger of fire from an overheated stove pipe, by placing tin between the pipe and the roof. This would leave a spot which would leak easily. As a protection against leaks, and to keep the chimney from blowing away, sod was sometimes placed up around the pipe.[74] This is illustrated in the picture

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70. Porter, op. cit., pp. 17-18; Letter from Mrs. Lupton; Letter from Willie Terrell; Letter from Frank Swink.

71. Porter, op. cit., p. 18.

72. Interview with Lingenfelder.

73. Interview with Mrs. Rumford; Interview with Miss Massie, who said that their old sod house had the sod roof until the strong winds of 1935 forced them to replace the sods with a metal covering.

74. Interview with Mrs. Rumford; Interview with Mrs. Querbach.

on page twenty-four. One old timer said the chimneys were usually made out of an old cream can.[75] Such a chimney is shown in the picture on the next page.

Some sod houses were covered with canvas roofs.[76] One of the first sod houses in Dodge City is supposed to have been covered with a roof made of buffalo hides.[77]

Partitions and Floors

Many of the early sod houses did not have any real partitions. To provide some privacy and divide the one room building into several rooms, sheets or curtains were hung.[78] It was possible to use the canvas wagon cover for a partition.[79] It these things were lacking, a quilt or a piece of rag carpet could be hung.[80] As the family grew in size, an addition could be built on, if the sod house were too small. In this case the original sod wall became the partition between the rooms. If the building were quite long, a sod partition could be

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75. Letter from Beougher.

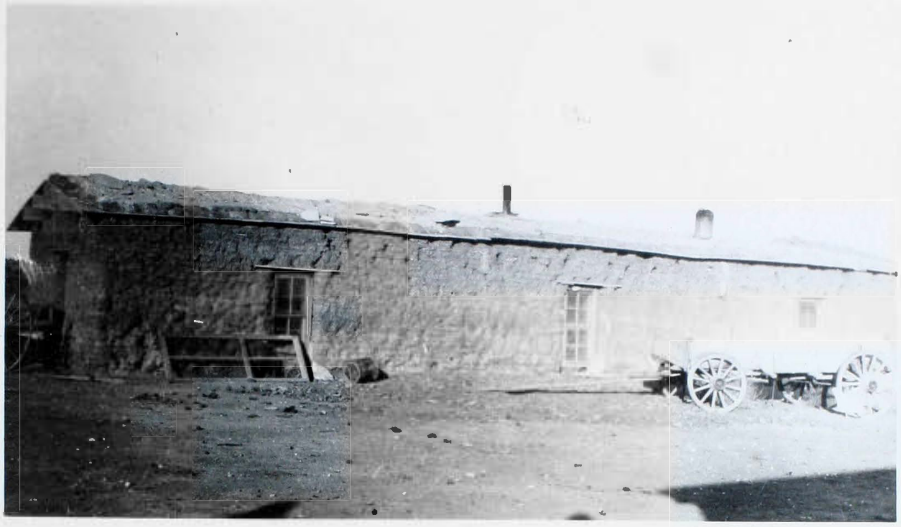
76. Carl Coke Rister, Southern Plainsmen (Norman: University of Oklahoma Press, 1938), p. 65; Colonel Homer W. Wheeler, Buffalo Days, The Personal Narrative of a Cattleman, Indian Fighter and Army Officer (Indianapolis: The Bobbs-Merrill Company, [c 1925]), p. 4.

77. Interview with Merritt L. Beeson, Dodge City, Kansas, February 4, 1950, Mr. Beeson has a picture of this house in his museum.

78. Interview with Wells; Interview with Cox; Interview with Miller; Letter from Florence Pulver, Osborne, Kansas, March 7, 1950.

79. Letter from Derby; "Kansas Scrapbook, Biography," Vol. 7, pp. 16-17.

80. Dick, op. cit., p. 114; Interview with Mrs. Ida A. Housman, Jetmore, Kansas, November 24, 1949.



Sod House in Wallace County

This picture was taken in 1924 in Wallace County. The sod on the roof appears to be of double thickness. One chimney looks like it was made from an old cream can. (Picture provided by Mrs. Nellie I. Addison, Hays, Kansas.)

erected in the center.[81] If lumber were accessible, a wood partition could be made.[82] Later many partitions were built of lath and plaster.[83] In one house, the wood partition was made into a storage closet.[84]

Sometimes the sod house was placed on ground from which the sod had been plowed to build the house. This left the smoothly plowed earth to be the floor of the house.[85] The grass might be cut close to the ground and the sod left for the floor of the house. This floor would soon become smooth and hard.[86] The earth floor would gradually wear off, leaving the furniture standing higher than the center of the floor. This could be filled with dirt, moistened and packed down.[87] The dirt floors were sprinkled with water and tamped down.[88] One of the early pioneers remembers that, while living with his grandmother when a small boy, his weekly job was to get some clay dirt which he mixed with a little water then brushed it over the floor and left it

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81. Letter from Parham; Bird, op. cit., p. 11.

82. Interview with Hubbell; Letter from Swink; Interview with Mrs. McGimsey.

83. Letter from Mrs. Lupton.

84. Letter from Mrs. Rex Paulsen, Palo Alto, California, March 6, 1950.

85. Interview with Wells; "Kansas Reminiscences, Clippings," Vol. 4, pp. 123-124.

86. Macdonald, op. cit., p. 2; "Kansas Description, Clippings," Vol. 1, pp. 180-183; Bird, op. cit., p. 11.

87. Mrs. Cole, op. cit.

88. Street, op. cit., p. 39; Interview with W. J. Querbach; Mrs. Toothaker, op. cit.

to dry. This caked into a fairly smooth, hard covering, and helped to prevent the floor from wearing away.[89]

Many of the women covered the floors with rag rugs or carpets. First a layer of straw was placed on the ground, then the carpet was stretched across the straw. If the carpet covered the entire floor of the room, small wooden pegs were driven into the floor around the walls; then the carpet was tacked to the pegs.[90] Some of the early homes had stone floors.[91]

As soon as it could be accomplished, a wooden floor was laid in the sod house, at least in the most used room--the kitchen.[92] These floors were made of very wide boards, of either 1 x 6 inches or 1 x 12 inches.[93] A present day sod house has a floor made of eight inch shiplap.[94] Many of the floors were laid directly on the dirt, but some laid joists and made floors the same as they are made in houses today.[95] A really elaborate house might have mop boards built at the bottom of the wall.[96]

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89. Interview with Hubbell.

90. Interview with Mrs. McGimsey; Interview with Mrs. Querbach; Letter from Cressler; Mrs. Toothaker, op. cit.

91. Letter from D. K. Hollinger, Russell, Kansas, March 4, 1950.

92. Letter from Swink.

93. Letter from Parham; Interview with Glaze; Interview with Lingenfelder; Porter, op. cit., p. 18.

94. Letter from Mrs. Paulsen.

95. Letter from Mrs. Lupton.

96. "Kansas Description Clippings," Vol. 1, p. 170.

Finishing the Inside of the House

It might take as long as a year for a sod house to settle.[97] After the walls had settled, they were plastered inside with whatever material there was at hand. Many made the plaster out of sand and native lime, which many called either gypsum or magnesia or marl. This was found, usually on the hills, a short distance below the surface of the ground.[98] This made a nice, smooth wall, but if the roof leaked, it would wask off very easily.[99] This plaster helped to cover any cracks, and served as a protection against mice and snakes working through the walls. Other materials that were used as plaster were: chalk, shale, clay mixed with sand, or clay mixed with ashes.[100]

Although the plastered walls might be lighter in color than the sod walls, many were still rather dark. To make the house brighter, many whitewashed the walls using slacked lime.[101] One account told of the walls being whitewashed twice a year.[102] One house was described in

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97. Letter from Parham.

98. Letter from Mrs. Lupton; Letter from Swink; Interview with Hubbell; Interview with Glaze; Interview with Cox; Porter, op. cit., p. 18.

99. Letter from Dr. Hickok; Letter from Derby; Interview with Mrs. Rumford; Ruede, op. cit., p. 29.

100. "Phillips County, Clippings," Vol. 2, advocates the use of chalk; Interview with Mrs. McGimsey, stated that shale was used as plaster; Interview with Miller, gave clay and sand, which was also stated as the material used by Ruede, op. cit., p. 29; Dick, op. cit., p. 114, said that clay and ashes were used.

101. Porter, op. cit., p. 18; Letter from Parham; Letter from Derby; Interview with Mrs. McGimsey.

102. Kansas City Star, July 18, 1935.

which the woman, to decorate the walls after they had been whitewashed, had used a cloth dipped in bluing to make a pattern of spots on the walls.[103] In some homes the walls were covered with wall paper.[104] In other instances newspapers were pasted on the walls.[105]

One account told how a clothes closet was made in the wall when the house was being built. One of the layers of sod, in the double thickness wall, was left out for a few feet. This left a niche in the wall, which, when covered with a curtain, made a fine closet space.[106]

Most of the early sod houses had no ceilings. Mice sometimes dug through the roof, and they were frequently followed by snakes, which would then fall onto the furniture or floor of the house. Centipedes and other kinds of bugs as well as dirt fell from the ceiling. To prevent this, many people stretched muslin across the rafters. One person remembered seeing a mouse run across the muslin followed by a snake.[107] If paper were pasted to the cloth, the moisture would stretch the cloth tight so it would not sag.[108] One instance is given in which paper alone was attached to the rafters to form the ceiling.[109]

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103. Interview with Wells.

104. Cole, op. cit.

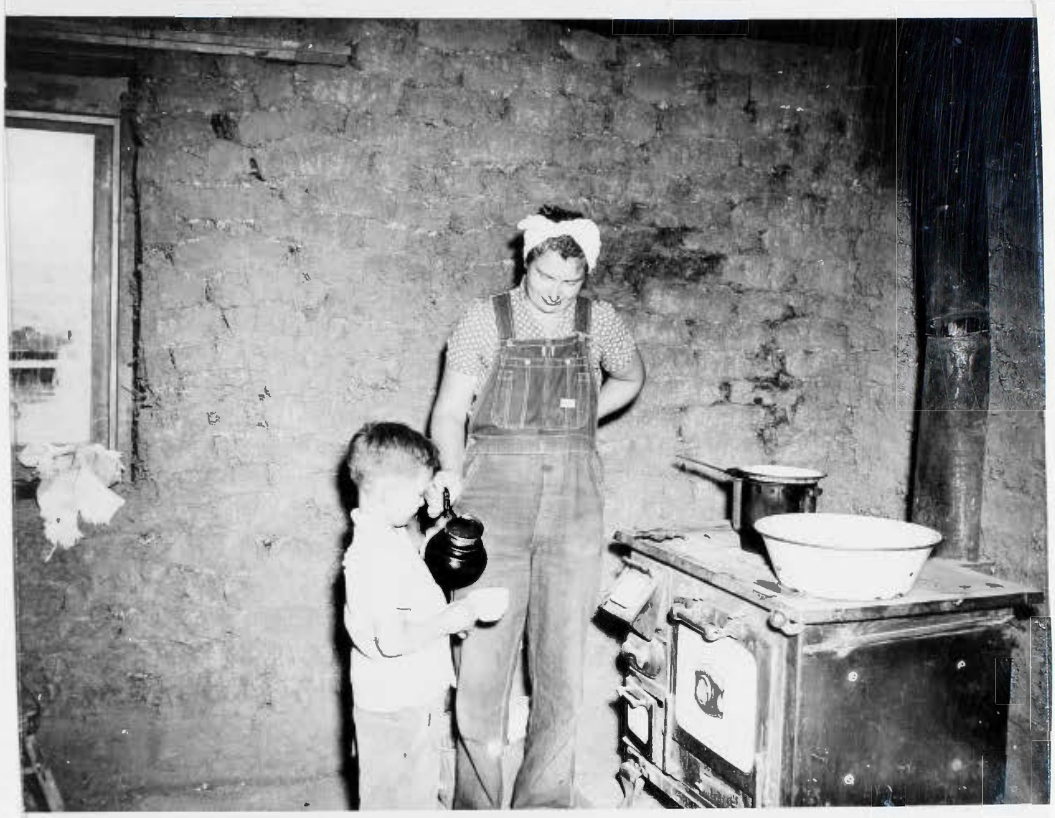
105. Jenkins, op. cit., p. 150; Margaret Whittemore, Sketch-book of Kansas Landmarks (Topeka, Kansas: The College Press, [c 1936]), p. 49.

106. Interview with Mrs. Querbach.

107. Interview with Wells; Letter from Parham; Mrs. Toothaker, op. cit.

108. Interview with Mrs. Rumford.

109. "Scott County, Clippings," Vol. 1, p. 73.



Interior of Sod House

This picture shows the interior of the sod house at Codell, Kansas before it was plastered with cement. At the back of the stove is shown the sod partition between the rooms. The sods are four inches thick. There are three rooms in the house which is 48 x 18 feet. (Picture provided by Mr. Ed Frank, Hays, Kansas. Information from The Ellis County News, May 20, 1948.)

The more modern sod houses which have a shingled roof, usually have ceilings. Many of these are made with lath and plaster.[110] One is described in which the ceiling is made of six inch tongue and groove flooring boards.[111]

The size of the windows and doors depended on the financial resources of the builder, or on what he could buy in his locality.[112] In the early houses, most of the windows were one sash containing four or six glasses of seven by eight or eight by ten inch panes. The frames were usually home made.[113] The window was generally set towards the outside of the wall, thus making a deep window sill on which flowers were often kept, never freezing during the winter. The deep sill also made a good seat.[114] Even the snakes liked to curl up on the window sill in the warm sun.[115]

The one sash windows did not usually open, if fresh air was wanted it was necessary to either open the door or take the window out of its frame.[116] Some windows were hinged at the top and thus opened.[117]

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110. Letter from Mrs. Lupton.

111. Letter from Mrs. Paulsen.

112. Letter from Swink.

113. Interview with Cox; Interview with Hubbell; Interview with W. J. Querbach; Interview with Wells.

114. Interview with Mrs. Rittenhouse; Interview with Mrs. McGimsey; Letter from Mrs. Volker; Letter from Mrs. Johnson; Letter from Mrs. Paulsen; Constable, op. cit., p. 12.

115. Letter from Beougher.

116. Interview with Wells; Interview with W. J. Querbach.

117. Interview with Glaze.

There were not many windows in a sod house, which is one reason why they were usually dark, but there was usually at least one window in each room. Some of the houses had a window on each of the sides, the number depended on the desires of the builder.

The door of the sod house was home made, usually of 1 x 12 inch boards. The doors were hung to the inside of the door frame and opened inward. If there were a screen door, it was hung on the outside of the door frame.[118] One person said that the wide door sill made a nice place for the dog to lie down.[119] If the entire wall around the door was not covered by the board frame, it was frequently covered with plaster. This made a cleaner doorway and protected the sod from being broken by the passage of the people.[120]

Quite frequently the hinges were also home made of leather from an old harness, or possibly of wood.[121] Or they might have iron hinges made by the blacksmith.[122] The early door fasteners were a whang string which was pulled inside at night.[123] A wooden latch was sometimes made to fasten the door.[124]

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118. Interview with Cox; Interview with Hubbell; Interview with W. J. Querbach; Letter from Cressler.

119. Interview with Mrs. Rumford.

120. Interview with W. J. Querbach; Interview with Mrs. Rumford.

121. Macdonald, op. cit., describes leather hinges; Topeka Capital, September 6, 1932.

122. Kansas City Star, July 18, 1935.

123. Letter from Beougher.

124. Ruede, op, cit., p. 43.

Sod House in Colby, Kansas

This picture shows the end of the house that was built at the fairgrounds in Colby, Kansas, in 1932. The house is 16 x 20 feet, the walls two feet thick and plastered with native magnesia. The plaster has washed off the outside but is still good on the interior. The doors are hung with wooden hinges. The roof is of sod over boards. (Picture taken January 16, 1950.)

Description of the Building

The size of the sod house depended upon the needs of the family. Many of the houses had but one room, while others had two or more. In some instances the one room was quite large and could be divided into several rooms by temporary partitions. The house might range in width from ten to twenty feet with a general width of sixteen feet. They usually were not built wider because walls which were too far apart would not stand up under the great weight of the sod roof. The house could be built to any desired length.[125] One man who planned to smoke meat and cure buffalo hides, built a large sod house twenty feet wide and eighty feet long.[126]

As the family grew in number and more rooms became necessary, they were added. Sometimes a lean-to was added on one side.[127] Or rooms could be added which would make the house "T" shaped, or "L" or "U" shaped.[128] One description was given of a sod house which was built with one corner lapping in front of a half dugout so the door of the dugout opened into the house, thus making a two roomed house.[129]

Several sod houses have been described which were one and a half stories high. The bottom floor would have two or three rooms,

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125. This information is drawn from the many letters and notes on interviews now in the possession of the author.

126. Connelley, op. cit., pp. 119-120.

127. Interview with C. I. Housman; "Scott County, Clippings," Vol. 1, pp. 73-81.

128. Interview with Miller: "Scott County, Clippings," Vol. 1, p. 73.

129. Interview with Wells.

Sod House Near Herndon, Kansas

This house was built in 1912 and is still being lived in. The house is in the shape of an "L", two rooms were constructed first, then others were added later. The wall is about 28 inches thick, of double layer of sods. After placing two layers of sod, a layer of cherry brush was laid, this helped to strengthen the wall.

It has been necessary to replace the tar paper on the roof. The old sod was placed back on the roof, mainly to hold the tar paper in place, then dirt was put on top of the sod.

The chickens have dug around in the dust at the base of the wall, so to protect the wall, cement was run at the base of the wall.

The sod house is modern, having electric lights and telephone. It has a wood floor, but no ceiling, the rafters are uncovered.

Before building this house, the people lived in a sod house with a brush roof. (Picture and information by Mrs. John W. Johnson, Herndon, Kansas.)

and there would be two rooms upstairs. One of these homes is still standing near Meade, Kansas.[130] There were some sod houses built which were two stories high.[131]

When some of the early frame buildings were found to be too cold in the winter time, a layer of sod was built up around the outside, and a sod roof was put on top of the frame roof. This resulted in a warm, clean house.[132] One house was described which had a basement dug beneath it. A two foot opening in the floor with steps leading down from it, was the means of access to the basement.[133]

The sod house was cool in summer and warm in winter.[134] Artificial air conditioning was not necessary in the sod house.[135] One early day doctor was quoted as saying that there never was another house built in Kansas that was as healthful for people as the old sod house. People had fewer colds and less sickness when they lived in the sod houses.[136]

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130. Letter from Miss Smith.

131. Interview with Glaze; Letter from Elias; Letter from Smith, who states that there was a two story sod house standing a few years ago in Haskell County west of Old Santa Fe. The Ulysses News, April 10, 1941, p. 4l, tells of one near Boise City, Oklahoma, that is still in use.

132. Interview with Glaze; "Minnesota History," Vol. 12, pp. 136-137, in the Kansas State Historical Society Library.

133. Interview with Mrs. McGimsey.

134. Among the people contacted, the point was agreed upon.

135. Letter from R. L. Smith; Letter from Mrs. Johnson.

136. Interview with Mrs. Rittenhouse, quoting Dr. T. C. Bowie, formerly of Hanston, Kansas

Only a little fuel was required to keep a sod house warm, and this fuel usually consisted of buffalo chips. The chips were gathered and stacked so they could be protected from the weather. A small sod shed could be built to hold them or they could be covered with straw or corn fodder.[137] One experience was recounted in which, during a blizzard, the family ran out of fuel, but did not wish to uncover their rick of buffalo chips to obtain more, for the snow would then blow in on the supply and ruin them for use. This farmer had corn stored which he had just completed husking, so they burned the corn, which gave them plenty of warmth until the end of the storm.[138] In emergencies the settlers sometimes burned hay. To make it burn longer, they twisted the hay in bunches.[139]

One woman who has lived in a sod house almost all her life, said that it never froze in the house as long as the roof was covered with sod. After a tin roof was put on the house, it would sometimes freeze in the two rooms that were to the north side of the house, but it never froze in the other rooms.[140] Another account stated that the only time water froze in the house in forty-nine years, was caused by the cold air coming through a hole in the wall that was made by a rat.[141]

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137. Interview with Lea Maranville, Ness City, Kansas, November 4, 1949; Letter from Derby; Interview with Lingenfelder; and many others.

138. Interview with Mrs. McGimsey.

139. Interview with W. J. Querbach.

140. Interview with Miss Massie.

141. "Sherman County, Clippings," Vol. 1, p. 219, Kansas State Historical Society Library.

One woman, who is still living in a sod house, believes it to be the warmest house in existence. There is no draft in a sod house and the floor is always warm. It is a nice place to be in a bad storm, for you cannot hear the rain or wind.[142]

The sod house dweller did not need to fear the strong prairie winds, nor the destruction of a prairie fire.[143] Care was needed to protect the roof from a hot chimney, but many of the earliest homes did not have that worry either for they were heated by a fireplace made of sod. The fireplace was built when the wall was constructed, by building out around it. The fireplace was about two feet high and two feet wide, the chimney of sod was built up on the outside of the wall.[144]

Some of the early settlers built stoves of clay. To make the clay bricks, small wooden forms were made from odd pieces of wood or split logs. Into this was packed a mixture of sand, clay and water. This was mixed to a sticky mud, then pounded into the forms. The bricks were left to dry in the sun, when they were hard, they were laid up with a clay mortar. The stove was usually built about four feet wide and four feet deep with two or more holes in the top in which a kettle could set. The chimney was made of the same material. Sometimes an oven was built of this same material, outside of the house.[145]

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142. Letter from Mrs. Johnson.

143. Dick, op. cit., p. 115; Letter from Mrs. Paulsen.

144. Letter from W. J. Querbach; Letter from Pulver.

145. The Ellis County News, April 15, 1948.

The sod house was generally built as a temporary, emergency shelter, which was not intended to last very long. Most of them stood from ten to twenty years; although many did not last that long. In fact some that were poorly constructed fell down with the first good rain that came along. The durability of the house depended to a very great extent on the skill of the builder and the method in which the house was constructed. It also depended on the nature of the roof. If the roof did not leak, and the eaves extended out far enough to protect the walls from being badly soaked by the rain, the house would last for a long time. Mice and other burrowing animals would undermine the walls. Cattle were a great enemy of the sod house, for in rubbing against the corners, which were thus weakened, the life of the sod house was shortened; so it was necessary to protect the houses from the cattle.[146]

In the early days protection was also needed from the buffalo. One account tells of the house having been left vacant for several months during the winter, when the owner came back, he found that the house had been destroyed by buffalo.[147] A settler, now one hundred years old, tells of seeing their new sod church destroyed by two buffalo that were fighting.[148]

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146. The information is drawn from the many letters and notes on interviews now in the possession of the author.

147. Connelley, op. cit., p. 120.

148. Clarence A. Schamber, "The Evolution of Schools in Phillips County, Kansas." Unpublished Master's Thesis, Fort Hays Kansas State College, July 26, 1949, p. 23, quoting Frederick C. Albright, Logan, Kansas.

In spite of all the things that would tend to destroy the sod house, some stood for many years without any protective covering on the outside. The sod house on the Volker farm ten miles northeast of Stafford stood for about sixty-five years before it collapsed. Rats and skunks digging through the walls after the house was used for a chicken house, helped to destroy it. The house originally had a split pole roof covered with sod, this was replaced with a shingle roof.[149]

Another old sod house, which is still standing but has no protective covering, is illustrated in the picture on the next page. The house was started in 1890 and the first part completed in 1893. The last addition was made in 1902. This house is still standing and was lived in until the winter of 1948. The walls of the old house have been reinforced and braced with poles. Around the one corner of the oldest part of the house, boards have been placed to protect it. Cement has been run at the base of the wall to protect it from the dogs which dug into the walls trying to find a cool spot during the summer heat. The original sod roof was replaced by a tin covering in 1935.[150]

An account is given of a sod house with a sod roof that was still in use in Scott County in 1936. This house had been built in 1899.[151]

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149. Letter from Mrs. Volker.

150. Interview with Miss Massie.

151. "Scott County, Clippings," Vol. 1, pp. 73-81. An attempt to obtain more information about these sod houses was unsuccessful. The people contacted believed there were no sod houses still in use in Scott County.

Sod House South of Colby, Kansas

This is a picture of the former George Massie sod house about ten miles south of Colby on the road to Monument. Of the part shown in the picture, the two rooms on the left side were completed in 1893, the room on the right end was added in 1902. While the kitchen which was built on the back of the house making it "T" shaped was built in 1900. The house had a telephone, running water, and was wired for electricity.

The house was lived in until the winter of 1948. After the blizzard in November of that year, in which the house was buried by the snow, the young woman and her elderly mother, who is in poor health, moved to town; but they prefer living in the old sod house to living in the modern frame house as they are now doing.

Much has been done to protect and preserve the old sod walls. At the right hand corner of the house can be seen the cement that was built in at the base of the wall to stop the dogs from digging into the wall. (Picture was taken January 16, 1950.)

There is a four roomed sod house near Herndon, Kansas, that has a sod roof and is still being used. The owners believe that a sod house is the best kind made.[152] A picture of this house appears on page 47.

Various methods were used by the people to protect the walls from being worn away. A few covered the outside with weatherboards.[153] The Peter Robidoux house in Wallace County was built in 1889. The sod walls were covered with a veneer of cement brick about 1914. It has been lived in most of the time for the last sixty years, and a member of the family believes it could last another sixty years.[154]

Many houses were plastered on the outside, but if a plaster were used made out of native lime and sand, it would not last very long, but would gradually be washed away by the rain. A house built about 1910 which was covered with chicken wire and then plastered, is still standing in Wallace, Kansas, and is being used for a garage. Another built about 1909 and covered with hail screen and cement, is still in good shape.[155]

A sod house located about eight miles north of Modoc, Kansas, was built in 1916. This house has a shingle roof, and the walls have been covered with stucco. The picture of this house on the following page, may explain why some people believe that sod houses are no longer being lived in. This one is now occupied.[156]

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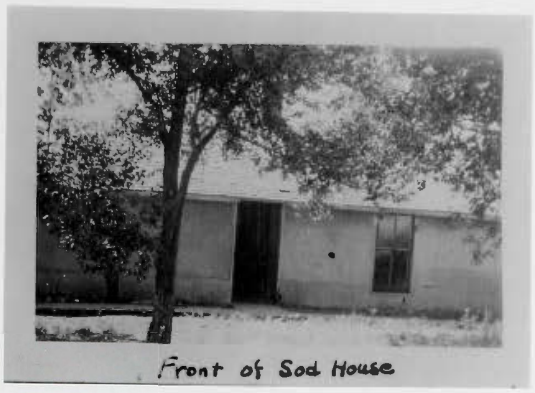
152. Letter from Mrs. Johnson.

153. Letter from Mrs. Lupton.

154. Letter from Frank Madigan, Wallace, Kansas, January 30, 1950.

155. Letter from Madigan.

156. Letter from Mrs. Paulsen.



Modern Sod House

This house is located about eight miles north of Modoc, Kansas. The house was built in 1916 after a prairie fire, which started in Eastern Colorado then traveled eastward, destroyed all the buildings and stock on the place. The members of the family escaped destruction by going into the cellar, although they were nearly suffocated. The fire was stopped by the Pacific Railroad Track. The day following the fire, the neighbors built the sod house for the family. It is 16 x 32 feet, divided into two rooms.

The house has a shingled roof, the ceilings of six inch tongue and groove flooring boards, and the floors are made of eight inch shiplap. The outside of the house is stuccoed, while the inside walls are plastered. (Information and picture provided by Mrs. Rex Paulsen, Palo Alto, California, who lived in this house for three summers and one winter.)

CHAPTER III

CONTEMPORARY SOD HOMES

Dugouts

The simplest type of a sod house was the dugout, and the easiest of these to build was a hole dug back into the side of a hill or ravine. The ground itself formed the roof. After the digging was completed, all that the builder had to do was to put in a door and door frame, and perhaps a small window. A hole for the stove pipe was dug through the top of the hill.[1]

A slightly more difficult dugout to build, was one that was not completely underground. Sometimes the front of this type of a house had to be constructed of sods, logs, or stone; then a roof made of poles, straw, sod, and dirt was added.[2]

The early trappers and hunters built simple dugouts to live in during the winter. They did not require many tools to construct, and were a good protection from the cold and the Indians. Canvas or skins could be hung over the doorway.[3]

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1. Letter from H. F. Schmidt, Dodge City, Kansas, February 4, 1950; Cass G. Barns, M. D., The Sod House . . . (Madison, Nebraska: Cass G. Barns, 1930), p. 58.

2. Letter from W. M. Parham, Logan, Kansas, February 14, 1950; Interview with H. John Baldrey, Hanston, Kansas, February 4, 1950; Interview with Thornton W. Wells, Hays, Kansas, February 9, 1950; Jeff Jenkins, The Northern Tier: or Life Among the Homestead Settlers (Topeka, Kansas: Geo. W. Martin, Kansas Publishing House, 1880), p. 149.

3. Mrs. Pearl Toothaker, "Sod Houses in Sheridan County," typed manuscript; "Kansas Scrapbook, Biography," Vol. 7, pp. 16-17, Kansas State Historical Society Library.

The dugouts were made any size desired. One account describes these "subterranean habitations" as being about ten feet wide, and twenty feet long.[4] Another account states they were usually made about twelve by fourteen feet.[5] Sometimes the dugout roof sloped only one way, but usually it had a peaked type of roof.[6] The back wall was laid up above the surface of the ground about two feet high in the center. The front of the dugout, if built of sods, might settle. To keep the roof even, forked posts were placed at the back and in the middle of the front to support the ridge pole which was laid across them. Split logs were laid from the ridge pole to the sides of the dugout. These were covered with willows and hay, which were covered with sods and dirt was then thrown on top.[7]

The dugouts were darker than the sod house. Usually there was only one half window beside the door, or possibly one on each side of the door. Occasionally a window was placed in the back wall, in that portion which was constructed to form the peak of the roof.[8]

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4. John H. Tice, Over the Plains, on the Mountains . . . (St. Louis, Missouri: "Industrial age" Printing Company, 1872), p. 43.

5. Jenkins, op. cit., p. 149.

6. Everett Dick, The Sod-House Frontier . . . (New York: D. Appleton-Century Company, 1937), p. 111.

7. Letter from J. E. Van Pelt, Great Bend, Kansas, February 23, 1950; Interview with William J. Querbach, Hanston, Kansas, November 23, 1950; Interview with H. J. Baldrey; Letter from H. C. Frazier, Protection, Kansas, February 19, 1950; Adolph Roenigk, Pioneer History of Kansas (Denver: Great Western Publishing Company, c 1933), p. 300.

8. Interview with Mrs. Eva McGimsey, Hays, Kansas, February 20, 1950; Interview with Mrs. Ida A. Housman, Jetmore, Kansas, November 24, 1949; Letter from Van Pelt.

The dugouts were much warmer than the sod house, requiring little fuel to keep them warm. Building a fireplace in a dugout was an easy job. A hole was dug in the bank at the back of the room, then dug up to the surface for the chimney. A few layers of sod were placed around the top of the hole to raise the chimney above the surface of the ground.[9] A chimney could be built of stones or of sticks plastered with mud.[10] If rock was plentiful, the fireplace, in fact the whole dugout, could be lined with rock. This made it much cleaner. Rock was frequently used to build the front of the dugout, then the regular dirt roof was added.[11]

The dugouts which were built in the banks of creeks or draws were subject to floods, which is one reason why they became unpopular as dwelling places; although the dugout was better protection from the wind and Indians than was the sod house.[12]

Many of the men who worked on the early railroads lived in dugouts. The dugout of one station keeper was built mostly of railroad ties. It was fifteen feet wide and twenty-eight feet long, with the sides built above the ground about two feet with railroad ties. There were small windows on three sides, and a large window on the side

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9. Interview with W. J. Querbach: Interview with Wells; Letter from Van Pelt; George Bird Grinnell, Two Great Scouts and Their Pawnee Battalion . . . (Cleveland: The Arthur H. Clark Company, 1928), p. 29.

10. Carl Coke Rister, Southern Plainsmen (Norman: University of Oklahoma Press, 1938), p. 66.

11. Interview with Wells, Interview with John Lingenfelder, Hanston, Kansas, November 5, 1949.

12. Dick, op. cit., p. 111; Interview with Mrs. Housman; Interview with Mrs. Ellen J. Querbach, Hanston, Kansas, February 4, 1950.

which had the door. The ridge pole, a bridge timber, was supported by railroad ties. The rafters were ties laid close together and covered with dirt. This dugout was described as a classy structure.[13]

The dugout was considered a temporary shelter until something better could be built. It was very inexpensive to construct, in fact it could be built at no cost, although it would be quite crude having no door or window. A minister in Nebraska gave the cost of a fourteen foot square dugout built in 1872. The cost was itemized as follows:

One window (8 x 10 glass)	$1.25
18 feet of lumber for front door	.54
Latch and hanging (no lock)	.50
Length of pipe to go through roof	.30
3 lbs. nails to make door, etc.	.19½
	$2.78½ [14]

Half-Dugouts

The half-dugouts resembled the sod house more than a dugout. In fact they were sometimes called simply a sod house; although they were quite frequently referred to as dugouts. The half-dugout is partly underground. A place the size of the house is dug in the ground to the depth of three or four feet. The walls are then built to the required height in the same manner as the walls of a sod house are constructed; then it is roofed in the same manner as the sod house. Quite frequently the half-dugout is dug into the top of a hillside, but it can be built

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13. Adolph Roenigk, op. cit., pp. 168-169.

14. Dick, op. cit., p. 112.

on the level ground. In the latter case a passageway had to be dug to the door level.[15]

The windows in a half-dugout were generally small half windows, or they could be full sized windows placed sideways. If the half-dugout was dug into the side of a hill, the front sometimes opened on level ground. In that case full sized windows could be placed in the front of the house.[16]

Sometimes the walls of the house were constructed of stone, then a sod roof was built.[17]

One account gave an estimate of the cost of the half-dugout, this particular individual did not own a team or wagon, so his expenses were probably a little higher than they would have been for a person doing his own hauling and sod breaking. The bill was as follows:

Ridgepole and hauling (including two loads of firewood)	$1.50
Rafters and straw	.50
2 lbs nails	.15
Hinges	.20
Window	.75
Total cash paid	$4.05

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15. Charles Moreau Harger, "A Visit to Sod-House Land," Woman's Home Companion XXXI (November, 1904), p. 10; "Kansas Description, Clippings," Vol. 1, pp. 180-183, Kansas State Historical Society Library; Interview with C. V. Glaze, Hays, Kansas, February 2, 1950; Interview with W. J. Querbach; Letter from W. F. Hughes, Stockton, Kansas, February 11, 1950; Letter from Dr. Galen R. Hickok, Brownsville, Texas, March 6, 1950.

16. Catherine Wiggins Porter, "Building a Kansas 'Soddy' -- 1885," edited by Kenneth Wiggins Porter, The Kansas Magazine (1942), p. 17.

17. Interview with George F. Sternberg, Hays, Kansas, March 1, 1950; Interview with Wells.

Paid for in work

Lumber	$4.00	
Hauling	1.50	
Hauling the firewood	.50	
Total (including firewood to last the summer)	$6.00	
	$10.05	18

To keep the house dry, a ditch was sometimes dug around the outside to carry away the rain water.[19]

One half-dugout of three rooms which was built in 1886 was still occupied in 1936. This was located about twenty miles northwest of Leoti, Kansas. It has been torn down since that date, but this shows that the half-dugout was just as durable as the regular sod house.[20]

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18. Howard Ruede, Sod-House Days, Letters from a Kansas Homesteader 1877-78, edited by John Ise (New York: Columbia University Press, 1937), p. 43.

19. "Kansas Description, Clippings," Vol. 1, pp. 180-183.

20. "Scott County, Clippings," Vol. 1, p. 75, Kansas State Historical Society Library.

CHAPTER IV

OTHER SOD BUILDINGS

Schoolhouses

The sod schoolhouses were built in the same way as the sod house. Many of the sod schools were built before there were any organized school districts. They were subscription schools, each family providing for its children and helping to pay the wages of the teacher. When the people had decided to build a school and had chosen the site, all the people in the neighborhood gathered with their horses, plows, and wagons. While the men built the schoolhouse, which usually did not take longer than a day, the women prepared the noon meal.[1]

In the sod school pictured on the next page, the first seats were boards placed across rocks, there were no desks. Later home-made seats and desks were provided. Although there were disadvantages to a sod schoolhouse, there were some advantages too. For example, if the teacher felt that one of the students was in need of a little chastisement, all that the teacher needed to do was reach up to the roof and pull out a willow switch.[2]

One little red frame schoolhouse was so open and cold that the school board had it walled up with a layer of sods on the outside. In

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1. William D. Street, "The Victory of the Plow," Collections of the Kansas State Historical Society, 1905-1906, IX (1906), pp. 38-39; Letter from Dr. Galen R. Hickok, Brownsville, Texas, March 26, 1950.

2. Interview with Claude Miller, Ness City, Kansas, November 4. 1949.

Old Sod School House

This sod school was located in Ness County seven miles south and one mile east of Ness City, Kansas. When the school was started, there was no organized district, it was a subscription school. The first seats were boards placed across rocks. Every family had to provide books and materials for its own children.

There are a few parents pictured. The teacher is seated in the chair to the front of the building. The donor of this picture is the small boy, number 20, seated on the ground in the front of the picture. (Picture and information provided by Claude Miller, Ness City, Kansas.)

that day, when most of the buildings were made of sod, the children were very proud of their frame schoolhouse. If anyone called it sod, they were immediately corrected.[3]

Frequently, instead of constructing a new building for the school, the settlers used a house or dugout that had been abandoned, or school could be held in the home of one of the settlers.[4] In Wichita, in 1870, the first school was held in an abandoned soldiers' half-dugout. To permit more light to enter, two small windows were placed in the roof.[5]

The first school in Norton, Kansas, was a dugout that was first used as a school in December, 1873. There were sixteen pupils, some of whom lived fifty miles from school.[6] The distance to a school was frequently a problem. One family solved this problem by building a sod house near the school so the children could live there. In stormy weather, the teacher sometimes found it advantageous to stay with the children in this house.[7]

One man told of his experiences while teaching in a sod-schoolhouse, he had to board with the families that had children in school.

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3. Letter from George C. Derby, Sublette, Kansas, February 20, 1950.

4. Letter from Miss Lura S. Smith, Meade, Kansas, March 17, 1950; Interview with Thornton W. Wells, Hays, Kansas, February 9, 1950.

5. "Kansas Description, Clippings," Vol. 2, pp. 32-38, Kansas State Historical Society Library; Letter from H. C. Frazier, Protection, Kansas, February 19, 1950, tells of going to school in a dugout with a shingle roof.

6. Darius N. Bowers, Seventy Years in Norton County, Kansas, 1872-1942 (Norton, Kansas: The Norton County Champion, 1942), p. 199.

7. Interview with H. John Baldrey, Hanston, Kansas, February 4, 1950; Interview with Mrs. Ellen J. Querbach, Hanston, Kansas, February 4, 1950.

One family had only a two room sod house, thus, when the teacher came, the boys had to sleep in the corn crib. In an attempt to get rid of bed bugs, the family had burned one of their beds with the result that the girls had to sleep on the floor.[8]

Teaching in a sod schoolhouse had its adventures too. The term was generally only three months long. One woman wrote of teaching school in such a building in 1883, "Of course snakes and centipedes would fall from the roof now and then, but we didn't pay much attention to that. Of course you know there was plenty of dirt, but we also got used to that in a way." If a rainstorm came up with a strong wind, they felt safe for the sod walls were strong, and it usually took some time for the roof to start leaking.[9]

The sod schoolhouse, sitting out on the prairie, needed protection from wandering stock. If the school yard was not fenced, protecting the schoolhouse was a problem. One school district solved the difficulty by constructing a small fence around the building, about two feet away from the sod walls.[10]

Another schoolhouse had a board frame built on the corners to help to protect them. To strengthen the walls, this schoolhouse had, every four feet, four inch boards placed across the wall as it was built.[11]

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8. Interview with L. W. Hubbell, Jetmore, Kansas, November 4, 1949.

9. Letter from Mrs. John Cole, Bazine, Kansas, February 7, 1950.

10. Picture seen in the private museum of Merritt L. Beeson, Dodge City, Kansas, February 4, 1950.

11. Letter from Geo. S. Albertson, Hill City, Kansas, March 15, 1950.

Spring Hill School House

This school house near Hill City, Kansas, was built about 1900. It was used for a schoolhouse for only six or seven years. The wall was twenty-two inches wide, sods of that length were laid crosswise in the wall. Four inch boards were laid across the wall every four feet. The window and door frames were home made. Boards were placed on the corners of the walls to protect them. The inside walls were plastered and white washed. There was a wood floor in the building. The roof was of boards with small boards nailed over the cracks. The whole was covered with paper, then sod placed on top. (Information from Geo. S. Albertson, Hill City, Kansas, picture provided by Dr. F. W. Albertson, Hays, Kansas.)

In 1935 there was a sod schoolhouse still in use thirteen miles northeast of Leoti, Kansas. It had been covered with cement to preserve it. It had been built in 1870.[12]

Churches

As in building the sod school, the people also united in building the sod church. There were few sod churches constructed. If a schoolhouse had been built, it frequently served as a church also; or services were often held in the home of one of the settlers.[13] The people were happy to have the opportunity to go to church, they appreciated the services that were held. After the church services were over, the people visited; for many this was the only opportunity they had to visit with their neighbors.[14]

Churches were built of sod because lumber was expensive and difficult to obtain. One church built in 1880, was thought to have cost less than any other church in the United States, for it cost only ten dollars. It had a dirt floor with sod walls and roof.[15] One person told of going to Sunday School in a dugout.[16]

When the Quakers moved to Haviland, Kansas, in 1885, the nearest place they could get lumber was forty miles away; so they built

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12. Kansas City Star, July 18, 1935.

13. This information is drawn from the many letters and notes on interviews now in the possession of the author.

14. Interview with Mrs. Eva McGimsey, Hays, Kansas, February 20, 1950.

15. The Kansas Historical Quarterly, X (1941), p. 104.

16. Letter from Miss Smith.

Sod Church

The sod church near Haviland was constructed by the Quakers. The building was 30 x 24 feet, the side walls were about six feet high. The sod was cut in blocks 18 inches long and 10 inches wide and 3 inches thick. There were two windows on each side, and one door in one end. It had a wood floor, and the seats were made of white pine boards. The church was plastered on the inside. B. H. Albertson and Jabez Hall were the master builders. The church was built in 1885 and was used until 1893. (Picture provided by Mrs. Benj. O. Weaver, Mullinville, Kansas; information from thesis of Arthur Dewey Rush.)

their church of sod. It was 30 x 24 feet with a shingle roof and board floor. Services were held in this church until August, 1893.[17] School was also held in the church until a schoolhouse could be built. Before services started the first Sunday, the children saw a rattlesnake about four feet long climbing up the sod wall. It was soon killed by the older people. The church had been built for several months before the floor and seats were put in place. The people sat on spring seats brought in from the wagons or on boards laid on piles of shingles. The entire cost of this church was sixty-eight dollars.[18]

In 1890, a small sod chapel was constructed four miles north of Hays, Kansas, on what is now the J. D. Fellers farm. The chapel was built by the Frank E. Hyer (Higher?) family who had moved to Kansas from New York in search of a climate that might be beneficial to the health of a son.[19] The chapel was said to have been still standing in 1903 when an article in the papers described it as being "an edifice of height and fine proportions, having architectural beauty and the usual churchly concomitants of steeple, bell, stained glass windows,

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17. Arthur Dewey Rush, "The Community of Haviland, Kansas, Its Early History and Development," Fort Hays Kansas State College, July 23, 1942, pp. 24-26.

18. "Sod Church at Haviland, Kiowa County, Kansas," from the written records of Ira H. Woodward (deceased), Kiowa County Historical Society.

19. Mrs. Frank C. Montgomery, "Manuscript" concerning the sod chapel north of Hays, Kansas. These papers are now in the possession of Mrs. Nellie I. Addison, Hays, Kansas. In all the written accounts the family name is given as "Hyer," but Mrs. J. D. Fellers says that the name was spelled "Higher" on the abstract of title to the farm. Interview with Mrs. J. D. Fellers, Hays, Kansas, April 5, 1950.

organ loft and chancel." [20] The value of the church was placed at a thousand dollars. Episcopal ministers sometimes conducted services in the chapel, although the chapel was never given to the Episcopal denomination nor chartered by any association. When and how the church was destroyed, and what became of the fixtures is not known.[21]

Farm Buildings

After the settler's circumstances had improved enough that he could build a frame house, the old sod house was frequently used as a chicken house, or for storage, or some other use on the farm. Many of the early chicken houses and barns were dugouts. Some of these had walls built of stone, which would make a much more durable and safer chicken house, for animals could not dig through the walls.[22] Sod was still frequently used in the construction of chicken houses at a much later date than it was used for other purposes. As late as 1923 chicken houses were being built of sod in southwestern Kansas.[23] A sod chicken house was very warm in the winter time. There were some disadvantages to sod chicken houses. Mice and skunks, and later rats,

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20. "Kansas Scrapbook, Biography," Vol. 7, pp. 16-17, quoting The Kansas City Journal, July 7, 1903.

21. Mrs. Montgomery, "Manuscript."

22. Interview with Wells; Howard Ruede, Sod-House Days, Letters from a Kansas Homesteader 1877-78, edited by John Ise (New York: Columbia University Press, 1937), p. 38.

23. Interview with Mrs. Odella Rumford, Dodge City, Kansas, November 4, 1949; Interview with Everett Rumford, Dodge City, Kansas, November 4, 194.

Sod House in Goodland, Kansas

This picture was taken in 1909. The house was built about 1884. At the time the picture was taken the house was being used as a chicken house. The picture shows that the walls were quite thick, even after all those years of use. The large ridge pole can be seen protruding from the end of the roof.

W. T. Wilson, the shorter man in the picture was the first homesteader in Sherman County. This may have been the first sod house built in that county. At one time it was the store and postoffice for Shermanville. The other man in the picture is Joe Collier. (Picture and information provided by Jesse L. Teeters, Goodland, Kansas.)

might dig through the walls. Snakes were frequent visitors, so care had to be taken when the eggs were being gathered. If the sod chicken house was used for a long time, the mites and lice might become quite numerous, but it was possible to control them by using dry lime on the floor.[24]

One early settler told how nests could be made in the walls by leaving out a few sods. Grass could then be placed in the recess to make a fine nest.[25]

The sod barn could be built much the same as a sod house, only it was necessary to build the walls a little higher and make wider doors than were usually built in a sod house. Frequently the barn roofs were covered with only grass and straw.[26]

The sod barn could be dug into a creek bank or the side of a draw, this type was sometimes left open in front.[27] The dugout barn could be sodded in front in the same manner as a dugout home. The roof of the barn was not constructed with as much care as was the house roof. Over the poles of the roof were placed brush, then straw or hay.

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24. Interview with William J. Querbach, Hanston, Kansas, November 23, 1949; Interview with Lewis F. Baldrey, Jetmore, Kansas, November 24, 1949; Interview with Mrs. McGimsey; Interview with Wells.

25. Interview with Mrs. McGimsey.

26. Interview with Wells; Interview with Charles I. Housman, Jetmore, Kansas, November 24, 1949; Interview with W. J. Querbach; Letter from H. F. Schmidt, Dodge City, Kansas, March 6, 1950.

27. Interview with C. I. Housman; Interview with H. J. Baldrey; Letter from Frazier; Interview with Mrs. Querbach; Interview with Everett Rumford.

Some dirt could be thrown on top to hold the straw in place.[28] Such a roof could be ignited by a prairie fire.[29]

The dugout stable had some disadvantages in a blizzard. The stock would keep warm, but the stable front and door would probably be buried by the snow drifts. The story was told how, after a blizzard, it was necessary to crawl out the top of a window to get out of the house to dig the snow away from the door, and also to dig a pathway to the barn. The path leading down to the barn door was slanting and the horses were afraid to walk on it; so it was necessary for the people to melt snow to obtain water, which was then carried to the stock to drink.[30]

In a somewhat similar case when the dugout barn was buried in snow, the man cut a hole in the roof of the barn; then the stock was watered by lowering buckets of water through the hole in the roof. About three days later it was possible to dig through the drift to the stable. In the stable at the time were three cows, two horses, and two hogs.[31]

The chickens liked to lay in the mangers of the barn. This was another place in which it was necessary to guard against the danger of

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28. Interview with H. J. Baldrey; Interview with C. I. Housman; Interview with Mrs. McGimsey; Interview with W. J. Querbach; Ruede, op. cit., p. 38.

29. Interview with Mrs. Querbach; Interview with H. J. Baldrey.

30. Interview with Mrs. Querbach; Interview with H. J. Baldrey.

31. Interview with Mrs. McGimsey.

picking up a snake instead of an egg. One woman told of her experience one day when she went to gather the eggs in the barn. She saw a six foot rattler lying inside the door. The eggs in the barn were not collected until her husband came home.[32]

One account told about a shack that had been moved in to be used as a milk house. To make it warmer, it was covered with a layer of sod.[33]

Fortifications

The pioneers learned that sod formed an excellent protection from the Indians. A dugout was a safe place in case of a fire.[34] One form of dugout was a common means of defense at many stations along the Smoky Hill Trail in Western Kansas during the years 1866 through 1868. The roofs of these dugouts were about a foot above the ground and had loopholes in all directions. They were connected with the other buildings by tunnels. Mrs. Custer describes the underground fortifications as follows:

> These Plainsmen all had "dug-outs" as places of retreat in case of fire. They were very near the stables, and connected by underground passage. They were about four feet deep. The roof was of timbers strong enough to hold four or five feet of earth, and in these retreats a dozen men could defend

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32. Interview with Mrs. McGimsey.

33. Catherine Wiggins Porter, "Building a Kansas 'Soddy' --1885," edited by Kenneth Wiggins Porter, The Kansas Magazine (1942), p. 18.

34. Letter from Mrs. Rex Paulsen, Palo Alto, California, March 6, 1950.

> themselves, by firing from loopholes that were left under the roof-beams. Some of the stage-stations had no regular buildings. We came upon them without being prepared by any signs of human life, for the dug-outs were excavated from the sloping banks of the creeks. A few holes in the side-hill, as openings for man and beast, some short chimneys on the level ground, were all the evidence of the dreary, Columbarium homes. [35]

Some of the forts also had dugout fortifications. Some places at which this type of defense could be found were: Fort Wallace, Pond Creek Station, Smoky Hill Station, Willow Creek Station, Henshaw Springs, Fossil Creek Station, and others.[36]

Another account describes these "underground monitors" as being about breast deep and ten feet square or larger, depending upon the number of men to be accommodated. The wall was built of sods about eighteen inches thick, then a plank roof was placed on top and covered with sod and dirt. Loopholes were cut in the sod walls. The entrance was a subterranean passage, sometimes as much as thirty feet long. If several were built, they were connected by underground passages. Although these fortifications were considered invulnerable, they could be occupied and the soldiers driven from them as was demonstrated one day when a diamond back rattle-snake made his appearance in one. He

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35. Elizabeth B. Custer, Tenting on the Plains or General Custer in Kansas and Texas (New York: Harper and Brothers Publishers, /c 1887/), pp. 341-342.

36. Oakley Graphic, March 13, 1936, March 20, 1936, and April 3, 1936; Harper's Weekly, X (January 27, 1866), p. 58; Harper's Weekly, X (April 21, 1866), pp. 249-250. Bell describes one of these dugout fortifications as they appeared in 1868, William A. Bell, New Tracks in North America, I (New York: Scribner, Welford and Company, 1869), p. 66.

had full possession of the fort until the men were able to kill him by firing through the port-holes.[37]

As a result of Indian scares, some sod forts were built by the people for protection. In 1870 in Jewell County near the site of Jewell City a sod fort was built. A spot of ground fifty yards square was selected and around it was constructed a wall of sod, four feet thick and seven feet high. It took two days to complete.[38] Indian defenses were also built in Mitchell County in 1867 and in Republic County in 1869.[39] As late as 1883, an Indian scare sent the settlers of Sheridan County into the county seat for protection, where they took refuge in a large sod stable.[40]

Sod Corrals and Fences

Due to the lack of wood, sod was used to build the corrals at many of the stations of the early express companies. A deep ditch was dug on the inner side of the wall and the earth thrown up to form the wall. Sod covered the face of the wall, and the opening left for

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37. DeB. Randolph Keim, Sheridan's Troopers on the Borders: A Winter Campaign on the Plains (Philadelphia: Claxton, Remsen and Haffelfinger, 1870), pp. 61-62.

38. Noble L. Prentis, A History of Kansas (Winfield, Kansas: Published by E. P. Greer, 1899), p. 127; "Jewell County," Collections of the Kansas State Historical Society 1926-1928, XVII (1928), p. 405.

39. Marvin H. Garfield, "The Military Post as a Factor in the Frontier Defense of Kansas, 1865-1869," The Kansas Historical Quarterly, I (November, 1931), p. 60.

40. Mrs. Pearl Toothaker, "Sod Houses In Sheridan County," typed manuscript.

the gate was closed by running a wagon into it. The ditch protected the wall from being knocked down by the animals, and the wall on the far side stopped the animals from jumping over the ditch.[41] When Alex Philip acquired the previous Big Creek station site, he found remains of a sod corral, with a well inside and the holes of dugouts nearby.[42]

The sod fence was built in the same manner as the corral except that the ditch was on the outside of the wall if the plot of ground was being fenced to keep animals out of it.[43] Sod fences were constructed as early as 1843 by Indians who were under the supervision of missionaries.[44]

Miscellaneous Uses for Sod Buildings

Sod buildings were used extensively at the military posts. In 1865 at Fort Ellsworth, the largest building was the commissary which was a sod house about twenty-five by forty feet in size. The barracks and officer's quarters were sod dugouts in the bank along the river. At the same time, Fort Dodge had commissary and quartermaster's build-

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41. George A. Root and Russell K. Hickman, "Pike's Peak Express Companies, Solomon and Republican Route," The Kansas Historical Quarterly, XII (November, 1944), p. 235; Carl Coke Rister, Southern Plainsmen (Norman: University of Oklahoma Press, 1938), p. 65.

42. Mrs. Frank C. Montgomery, "Fort Wallace and Its Relation to the Frontier," Collections of the Kansas State Historical Society, 1926-1928, XVII (1928), p. 197.

43. The Kansas Historical Quarterly, X (February, 1941), p. 102.

44. "Letters Concerning the Presbyterian Mission in the Pawnee Country, Near Belluve, Nebraska, 1831-1849," Collections of the Kansas State Historical Society, 1915-1918, XIV (1918), pp. 729-730, 733.

ings made of sod. The soldiers' quarters were also of sod and were placed along the north bank of the Arkansas River.[45]

Sod buildings were frequently used as store buildings and post offices. Many of the early post offices were in the homes of the people. Many of the early "ranch" houses on the trails were built of sod. One unusual house was built of siding but roofed with sod.[46]

The little town of Reynolds was built almost entirely of sod, while Sheridan, Kansas, consisted of many sod buildings. It had two or three restaurants that were dugouts with canvas roofs.[47] Other than houses, stores, restaurants, and a corral made of sod, Reynolds also had a large saloon and dance hall built of sod.[48]

Another account tells of a two room whisky and poker establishment made of sod.[49] As a protest against the many saloons that were springing up, a settlemnt on the North Solomon constructed a sod Temperance Hall in 1880.[50]

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45. George A. Root, "Reminiscences of William Darnell," Collections of the Kansas State Historical Society, 1926-1928, XVII (1928), pp. 509-510.

46. Mrs. Clara M. Fengel Shields, "The Lyon Creek Settlement," Collections of the Kansas State Historical Society, 1915-1918, XIV (1918), p. 143.

47. Colonel Homer W. Wheeler, Buffalo Days, Forty Years in the Old West . . . (Indianapolis: The Bobbs-Merrill Company Publishers, [c 1925]), p. 4.

48. Rister, op. cit., p. 65.

49. Charles Sumner Gleed, "Eugene Fitch Ware," Collections of the Kansas State Historical Society, 1913-1914, XIII (1915), pp. 31-32.

50. Mrs. Toothaker, op. cit.

Sod buildings were used for every conceivable purpose. One man told of building, in the early seventies, a small black-smith shop and mule stable of sod.[51] Another account tells of a dugout in the bank of the Saline River, which was used as a shop where wagon work was done for the settlers.[52]

The use of sod for building purposes has been attempted in modern times. In Meade, Kansas, the Boy Scouts have a sod recreation cabin that is located in the municipal city park.[53] In 1933, the Civilian Conservation Corps attempted to build sod houses at the Finney County State Lake, and at the Sheridan State Lake near Quinter. They found that the quality of the sod was too poor to be used for building purposes. It was necessary to mix the sod with water and straw, then mold it into bricks and leave it to dry in the sun. The result was more an adobe construction than a sod construction.[54]

In 1932 a sod house was built in Colby, Kansas, at the fair-grounds. The walls are two feet thick and plastered with native magnesia which is no longer on the outside, but the plaster is still in good condition on the inside.[55]

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51. Letter from E. D. Baugher, Kinsley, Kansas, February 14, 1950.

52. Adolph Roenigk, Pioneer History of Kansas ([Denver: Great Western Publishing Company, c 1933]), p. 92.

53. Letter from Miss Smith.

54. Margaret Whittemore, Sketchbook of Kansas Landmarks (Topeka: The College Press, [c 1936]), pp. 49-50; "Kansas Description, Clippings," Vol. 2, pp. 32-38.

55. "Kansas Description, Clippings," Vol. 2, p. 19.

Sod House Built in 1948

It required three weeks to construct this 18 x 48 foot house. The wall is twenty-four inches wide, made of blocks of sod four inches thick, twelve inches wide and eighteen inches long. Buffalo grass sod from the pasture near the house was used. There are three rooms with sod partitions. The board roof is covered with tar paper then a layer of sod. This house is near Codell, Kansas.

Cement plaster was used inside the house, while stucco was used to finish the outside walls. The entire cost of the house was $50. (Picture and information provided by Paul R. Cobb; additional information from The Ellis County News, May 20, 1948.)

CHAPTER V

HAZARDS OF LIVING IN SODDIES

Rainstorms and Floods

If it rained long enough and hard enough, the best sod roof would leak. One person said that if the roof was well made with the sods laid like shingles, it would take a steady rain of five or six days for the roof to leak.[1] Most of the roofs would start leaking after they had absorbed all the water they could hold; then after the rain had stopped outside, it would continue raining inside for several hours.[2]

One old timer enjoys the memory of an experience he had as a young man. One evening he went to visit a young bachelor fried. When the friend had built his sod house, he had used green poles for the rafters. As the poles dried with the heavy weight of sod upon them, they bowed down forming a shallow "U" on each side of the ridge pole. During the evening a shower came up, and did that roof leak! It had to. It was impossible for the water to run off the roof, it had to come through it.[3]

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1. Interview with W. Henry Cox, Hanston, Kansas, November 6, 1949.

2. Claude Constable, "History of Rawlins County," Microfilm in the Kansas State Historical Society Library, p. 13; Mrs. Pearl Toothaker, "Sod Houses in Sheridan County," typed manuscript; Interview with William J. Querbach, Hanston, Kansas, November 23, 1949; Interview with H. John Baldrey, Hanston, Kansas, February 4, 1950.

3. Interview with Claude Miller, Ness City, Kansas, November 4, 1949.

Another early settler tells of the pride his mother and sisters had in a new bureau. When the roof started to leak during a rain, to protect the new piece of furniture from the leaks, they rolled it into the doorway, that was the only place the roof was not leaking.[4]

One woman recalls her experience as a young girl. She was cooking for her brother during harvest, when, as frequently happens during that season of the year, a hail storm materialized. One half of the house had a tin roof, the other half was of sod. This was one person that was thankful for a sod roof. It wasn't quite as deafening in that part of the house as it was under the tin roof. The sod roof did leak some around the chimney, and as the water ran down the wall, it loosened the plaster which fell off. The plaster, of native lime and sand, had to be kept dry to remain in its place.[5]

Another woman tells of an incident that happened when she was a little girl, and helped her mother care for her brother who was very ill. The boy was seated in a chair with blankets wrapped around him, and his feet in a tub of hot water. They had to hold an umbrella over him to keep the rain from dripping on him.[6]

In addition to making the roof leak, the rain might wear holes and gullies in the walls. Since there was no foundation under the walls, it was important to keep the ground around the house slightly higher

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4. Interview with W. J. Querbach.

5. Interview with Mrs. Odella Rumford, Dodge City, Kansas, November 4, 1949.

6. Interview with Mrs. Ellen J. Querbach, Hanston, Kansas, February 4, 1950.

than the surrounding land so the rain water could run away. This was especially important in freezing weather, as the intermittent freezing and thawing would cause the walls to crumble at the base.[7] But the rain didn't seem to make very much impression on a wall that was constructed carefully.[8]

Rains in Kansas are frequently followed by floods, especially if one lives near a creek or draw. One woman tells of the experience her family had when she was a little girl. Their home was built at the side of a slight draw. One morning when they looked out the window, they saw that the yard was full of water. Her father opened the door to investigate and the house was immediately filled with several feet of water. Her mother had a rag rug on the floor with straw under it, which was quite a mess to clean after the water receded. The water standing around the house, thoroughly soaked one wall, and a day or so later part of it collapsed. The debris blocked the door, and her father had to crawl out the window to clear it away. He then repaired the wall.[9]

Another account tells about a young man, who, during a heavy rain storm, made a dam around the door to his dugout to try to keep the water

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7. Letter from Frank Swink, Hugoton, Kansas, February 20, 1950; Letter from Mrs. J. S. Lupton, Cimarron, Kansas, February 21, 1950; Letter from W. A. Cressler, Hoxie, Kansas, February 21, 1950.

8. Letter from W. M. Parham, Logan, Kansas, February 14, 1950; Charles Moreau Harger, "A Visit to Sod-House Land," Woman's Home Companion, XXXI (November, 1904), p. 10.

9. Interview with Mrs. T. C. Aistrup, Hanston, Kansas, November 4, 1949.

out. After he completed protecting his house, he went to help his neighbor who was having trouble keeping the water out of his place. The young man had a roll of money which he didn't want to get soaked, so he placed it under his mattress. About an hour later he looked to see whether the dam had protected his dugout, and found that it was flooded nearly to the top. Although the door was covered with water, he dived in and found the bed floating in the water which was up to his neck. He secured his money and dived back out again.[10]

Another person recalls that he slept and played under the kitchen table when it rained, for that was the only dry place in the house.[11] In an attempt to keep the bedding dry, it was sometimes all placed on one bed and an oilcloth or something else placed over it.[12]

The sound of the wind and the rain did not penetrate through the thick sod walls and roof.[13] Therefore a storm sometimes came up during the night and the occupants of the sod house or dugout did not know it was storming. One account told how one man had been visiting at his neighbors when a blizzard started. He insisted on returning to his home and was almost frozen by the time he got there. After warming up, he put his clothes in bed so they would keep warm. He was awakened by an odd noise during the night, and discovered that

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10. Adolph Roenigk, Pioneer History of Kansas ([Denver: Great Western Publishing Company, c 1933]), pp. 184-185.

11. Interview with L. W. Hubbell, Jetmore, Kansas, November 4, 1949.

12. Constable, op. cit., p. 13.

13. Letter from Mrs. John W. Johnson, Herndon, Kansas, March 17, 1950.

the roof had blown off his house. He was lucky to have his clothes handy so he could get dressed. He then made his way to a neighbor's house that was in a sheltered place. To find the way, he had to crawl on his hands and knees to follow the path which had been worn in the buffalo grass.[14]

One woman said that she had hung her washing on the wagon and the high grass to dry, when a storm developed. She gathered all the clothes she could find, but in the spring a bachelor neighbor brought back a baby's dress which he had found in a corn shock.[15]

Unwelcome Visitors

In the early days, one of the most annoying pests to be found in sod houses, were the fleas. They lived in the grass and were thick on the prairie. After the sod houses were plastered and floors built, the fleas were not so bothersome.[16] It was also possible to control the fleas by scattering stock salt over the floor.[17]

Another pest that was very annoying and difficult to control was the bedbug. If the walls were not plastered, the bedbugs would

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14. O. P. Byers, "Personal Recollections of the Terrible Blizzard of 1886," Collections of the Kansas State Historical Society, 1911-1912, XII (1912), p. 101.

15. Interview with Mrs. Eva McGimsey, Hays, Kansas, February 20, 1950.

16. Interview with Miss Martha Massie, Colby, Kansas, January 16, 1950; Interview with Mrs. Ida A. Housman, Jetmore, Kansas, November 24, 1949; Interview with Cox; Mrs. Toothaker, op. cit.

17. "Kansas State Historical Society, Scrap-Book," Vol. 12, p. 161.

get in the cracks of the sod, and it was impossible to get rid of them.[18] One woman told how her mother would pour kerosene over the beds every month, take the bed ticks out, empty them, wash them, and fill them with new straw. Then they could sleep in confort for about two weeks.[19]

Spiders, centipedes, scorpions, and tarantulas frequently fell from the sod roof.[20] One of the most bothersome of all rodents was the mouse, which burrowed through the walls and roof. In later years, the rats were also a pest, but in the early years there were no rats here.[21] Some considered the bull snake an almost welcome visitor, for it crawled through the holes in search of the mice.[22] Other snakes were frequent, although not so welcome visitors. One man told of the time a blue racer got into their house, and his mother immediately left the house, refusing to permit the son to go in and kill it, although he frequently killed worse types of snakes out on the prairie.[23]

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18. Interview with Mrs. Aistrup; Interview with Mrs. Querbach; Howard Ruede, Sod-House Days, Letters from a Kansas Homesteader 1877-78, edited by John Ise (New York: Columbia University Press, 1937), p. 91.

19. Interview with Mrs. Aistrup.

20. Interview with Thornton W. Wells, Hays, Kansas, February 9, 1950; Letter from George C. Derby, Sublette, Kansas, February 20, 1950.

21. Interview with Cox; Interview with Mrs. McGimsey; Interview with W. J. Querbach.

22. Interview with H. J. Baldrey; Letter from Merlyn E. Beougher, Gove, Kansas, February 17, 1950. Mr. Beougher also stated that frequently some member of the family would be bitten by a snake before anyone was aware of his presence.

23. Letter from Derby.

Another account told of making a bed on the floor for a visitor. One night his occupation of the bed was disputed--by a rattlesnake. After that, before getting into the bed, he carefully examined it to make sure it was not occupied. A neighbor woman took a dress down that had been hanging against the wall and found a rattler curled inside the folds.[24]

It was not unusual to come home after being away for awhile and find a rattler in the house.[25] One woman wrote that the first time she went into her brother's sod house, there was a bull snake curled up in the ashes of the fireplace for warmth. They believed he had come down the chimney.[26]

Sometimes the snakes would fall from the roof, or they could be seen crawling through the wall of the house. One woman remembers a pair of long, pointed fireplace tongs, which she always thought of as "the snake tongs." Whenever they saw a snake in the wall, they would use those tongs to get hold of it and pull it out.[27]

Ground squirrels, weasels, and skunks sometimes dug through the walls. They were usually in search of the mice, so if the mice

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24. Roenigk, op. cit., p. 305.

25. Interview with H. J. Baldrey.

26. Letter from Florence Pulver, Osborne, Kansas, March 7, 1950.

27. Interview with Mrs. Housman; "Phillips County, Clippings," Vol. 2, Kansas State Historical Society Library; "Kansas Reminiscences, Clippings," Vol. 5, p. 73, Kansas State Historical Society Library.

were kept out, other animals would not be so likely to bother.[28] One person claims that sometimes the sparrows picked holes in the walls.[29] One woman wrote of using fifty pounds of patching plaster to fill the mouse holes and keep them out of the house.[30] Plastering the house was a great aid in keeping out the mice. If the house were plastered on the outside as well as inside, it would be much more rodent resistant.

Collapse

Sometimes a wall would start to lean, but the people generally propped it up before it fell.[31] When a sod house did collapse, the walls always fell out, for moisture soaking into the outside of the wall made it heavy and this would pull the wall in that direction.[32] One account told of a family who lived in a new sod house which had a shingle roof. They had lived in it but a short time when a slow-falling rain which lasted for several days, thoroughly soaked the walls. One morning, one whole side of the house fell out.[33]

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28. Letter from Beougher; Interview with C. V. Glaze, Hays, Kansas, February 2, 1950.

29. Letter from Beougher.

30. Letter from Mrs. Rex Paulsen, Palto Alto, California, March 6, 1950.

31. Interview with Mrs. McGimsey.

32. Interview with Hubbell.

33. W. C. Simons, "An Address Made Before the Old Settlers Association of Lawrence, Kansas, September 15, 1924," Collections of the Kansas State Historical Society, 1923-1925, XVI (1925), p. 521.

When a sod roof was well soaked, its weight was immense. The heavy rafters would sink deep into the soggy walls, until the walls might collapse or the roof cave in.[34] The reason given for the collapse of one dugout after a rain was that the walls had been slanted inward too much as they were built.[35]

It was seldom that anyone was injured when a building did collapse, but a George Miller was killed in a sod house when the roof fell in. This house had been left vacant, the doors and the windows were out. During a storm, cattle had gone in for shetler. When Mr. Miller attempted to drive the cattle from the building, they knocked down the center pole which was supporting the roof, and the roof fell in killing the man.[36]

The sod house was considered fire proof, and it generally was during a prairie fire. But it was possible for the timber in the roof to catch on fire.[37] One sod house which had stood for over thirty years, and had a shingled roof, was destroyed by fire. The inside and the roof burned, it was damaged too badly to be repaired, so the remains were torn down. This house was modern in every respect, being one of the first sod houses to have electric lights.[38]

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34. Everett Dick, The Sod-House Frontier, 1854-1890 . . . (New York: D. Appleton-Century Company, 1937), p. 115.

35. Ruede, op. cit., p. 105.

36. Interview with Claude Miller, Ness City, Kansas, November 4, 1949.

37. Catherine Wiggins Porter, "Building a Kansas 'Soddy' --1885," edited by Kenneth Wiggins Porter, The Kansas Magazine (1942), p. 18.

38. "Gove County, Clippings," Vol. 1, pp. 56-57, 63.

CHAPTER VI

SUMMARY

The sod house was a necessary development in the settlement of the timberless plains of Western Kansas. It permitted the early settlement of the plains by providing a type of home which could be built from materials at hand before rail transportation made other building materials accessible. The sod house also permitted the settler to meet one of the requirements of the homestead and other land acts.

There were as many ways to build a sod house as there were people to build them. The size of the house depended upon the needs of the family, the accessibility of necessary wood, and the ability and equipment of the builder.

Generally the sod house consisted of one room that was partitioned with curtains. It was approximately 12 x 14 feet, made of sods about four inches thick, twelve inches wide, and twenty-four inches long. The lumber used by the early settler in building the roof of his house came from the trees and willows along the streams. There was no floor in the house. Windows were few and small because it was difficult to obtain them.

A home other than the sod house, and usually preceding it, was the dugout which was a hole dug into the side of the bank. The half-dugout was dug into the ground only part way, then built on top of the ground like a regular sod house.

Sod was used in the construction of schools, churches, fortifications, barns, chicken houses, corrals, fences, in fact every type

construction that was needed and built by the settlers. The buildings in towns, as well as on the farms, were made of sod.

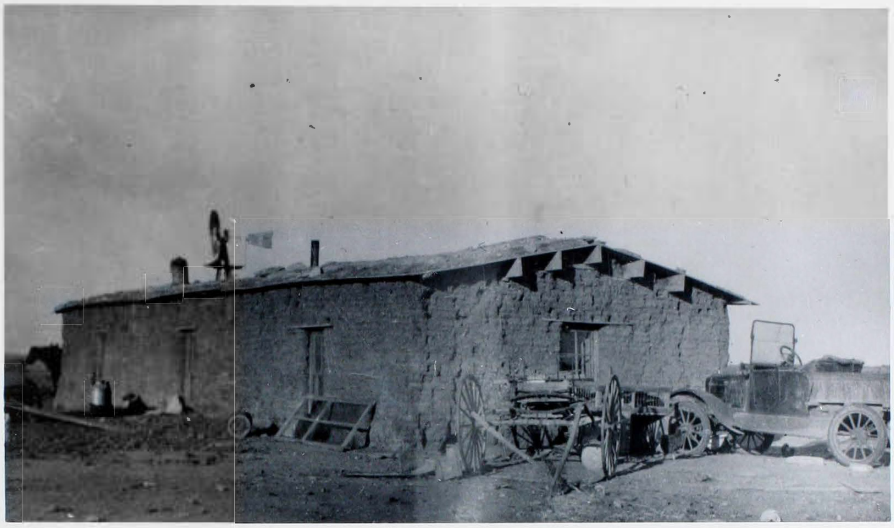
The sod house did not require artificial air conditioning. It was warm in the winter, requiring little fuel to heat it, and cool in the summer time. It could withstand the strong winds, in fact it was almost the perfect home for the vagaries of the Kansas weather.

There were some disadvantages to living in a sod house. In a heavy rain, the roof generally leaked. Mice and other burrowing animals dug through the walls and roofs, and they were followed by snakes. If the sod walls were not plastered, and if there were no protective covering on the ceiling, the sod house was dirty. But many sod houses were finished attractively inside, and looked the same as any other house.

A sod house was like any other type of building. If it were well constructed and care was taken of it, it would last a long time. But a poorly constructed sod house which received no care would not last long.

Sod House in Finney County

The picture of an old deserted sod house was taken in 1920 in Finney County, Kansas. The walls are falling down in places and have been reinforced with stones. The doors have small windows in them. This was frequently done to provide more light without building more windows. The roof appears to be of the bowed, box car type. (Picture provided by Mrs. Ellen J. Querbach, Hanston, Kansas.)

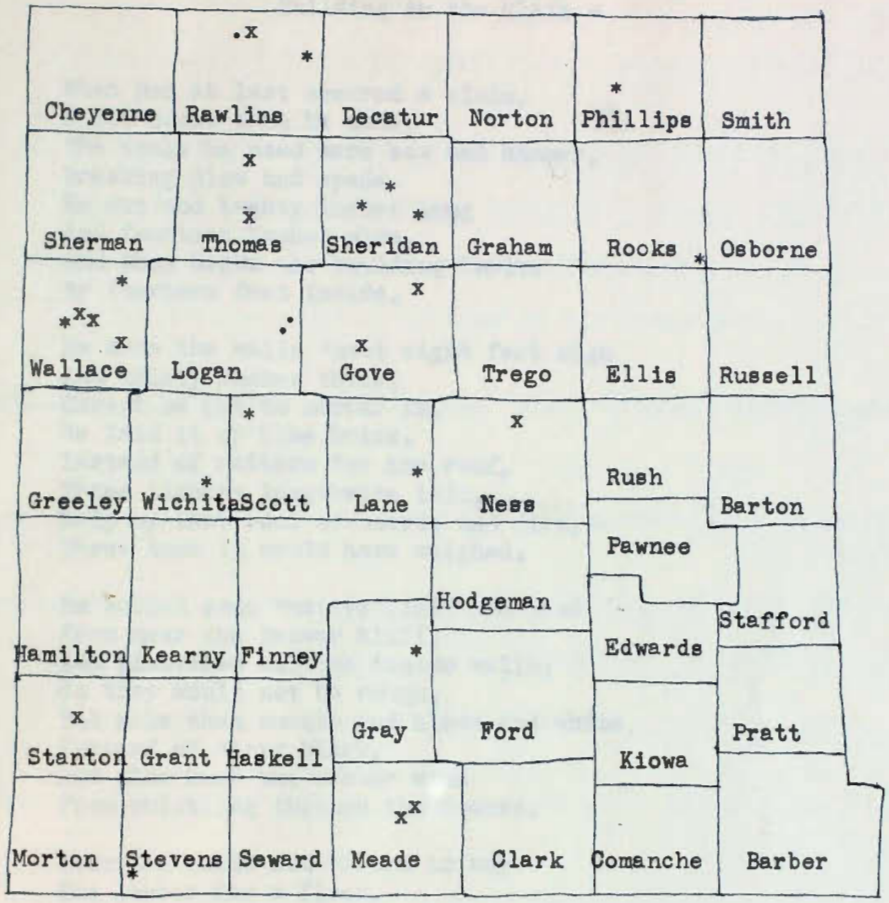


Wallace County Sod House

This picture was taken in 1924. It shows rocks placed on the roof around the stove pipe, this could be to give support to the pipe, or to hold down the sods on the roof. The boards can be seen that were placed in the walls to support the rafters, and above the windows. This house has an old cream can on the roof which was used as a chimney. (Picture provided by Mrs. Nellie I. Addison, Hays, Kansas.)

Sod House with Broken Plaster

Picture of a sod house in Phillips county showing the plaster coming off the wall. In some places the manner in which the sod was laid can be seen, showing the way the joints were broken. This house is still standing and in use. (Picture provided by Paul R. Cobb, Hays, Kansas.)



Sod Buildings of Western Kansas

. Ruins
* Buildings now occupied by people
x Buildings still standing but unoccupied at present, possibly used for other purposes.

This map shows the counties of Western Kansas in which persons were contacted for information concerning the subject of this thesis. Those sod building sites which are listed hereon were located from information received from the many persons who replied to the requests which were sent to all the counties, or from actual observation. There may be others (probably are) but no information was received concerning them.

Building on the Claim *

When Ned at last secured a claim,
A sod-house then he made.
The tools he used were saw and hammer,
Breaking plow and spade.
He cut sod twenty inches long
And fourteen inches wide,
And then began the building twelve
By fourteen feet inside.

He made the walls 'most eight feet high
And thirty inches thick;
Except he put no mortar in,
He laid it up like brick.
Instead of rafters for the roof,
Three timbers lengthwise laid,
Help up that roof of boards and dirt,--
Three tons it would have weighed.

He hauled some "native lime" and sand
From near the Beaver bluff,
And plastered all the inside walls;
So they would not be rough,
But make them smooth and clean and white,
Instead of dirty black,
And also keep the winter wind
From whistling through the cracks.

Then Ned could not afford to buy
The lumber for a floor,
But whispered to himself, "I'll walk
On dirt a year or more."
He filed his spade till it was sharp
Enough to shave a clod,
And then one inch below the surface
Shaved away the sod.

. . . . . .

* Elihu Bowles, In a Sod House (Emporia, Kansas: Elihu Bowles, 1897), pp. 13-14.

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Many interesting pictures of sod houses, with a description of their construction.

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Gives the requirements to be met to obtain government land.

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Describes some of the sod fortifications in Western Kansas.

Dick, Everett, The Sod-House Frontier, 1854-1890, A Social History of The Northern Plains from the Creation of Kansas and Nebraska to the Admission of the Dakotas. New York: D. Appleton-Century Company, 1937. 550 pp.

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Contains a description of the construction of a dugout and a fireplace by scouts.

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Gives a general description of a sod house and its furniture.

Keim, DeB. Randolph, Sheridan's Troopers on the Borders: A Winter Campaign on the Plains. Philadelphia: Claxton, Remsen and Haffelfinger, 1870. 308 pp.

Describes the sod dugouts used as fortifications in Western Kansas.

Prentis, Noble L., A History of Kansas. Winfield, Kansas: E. P. Greer, 1899. 361 pp.

Gives the materials used by the homesteader in constructing his home.

Rainey, George, No Man's Land, The Historic Story of a Landed Orphan. Enid, Oklahoma, 1937, 123-124.

A good description of the building of a sod house.

Rister, Carl Coke, Southern Plainsmen. Norman: University of Oklahoma Press, 1938. 262 pp.

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Roenigk, Adolph, Pioneer History of Kansas. /Denver: Great Western Publishing Company, c 1933/7. 365 pp.

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Byers, O. P., "Personal Recollections of the Terrible Blizzard of 1886," Collections of the Kansas State Historical Society, 1911-1912, XII (1912), 99-117.

Tells of experience in a blizzard when the roof blew off his sod house.

Shields, Mrs. Clara M. Fengel, "The Lyon Creek Settlement," Collections of the Kansas State Historical Society, 1915-1918, XIV (1918), 143-170.

Describes a house built of wood, but with a sod roof.

Simons, W. C., "An Address Made Before the old Settlers Association of Lawrence, Kansas, September 15, 1924," Collections of the Kansas State Historical Society, 1923-1925, XVI (1925), 515-523.

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Street, William D., "The Victory of the Plow," Collections of the Kansas State Historical Society, 1905-1906, IX (1906), 33-44.

Description of the building of a sod schoolhouse.

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"Bypaths of Kansas History, The Kansas Historical Quarterly, X (February, 1941), 102-104.

An interesting description of sod fences.

"Jewell County," Collections of the Kansas State Historical Society, 1926-1928, XVII (1928), 389-409.

Describes the sod fort that was built as protection against the Indians.

"Letters Concerning the Presbyterian Mission in the Pawnee Country, Near Bellvue, Nebraska, 1831-1849," Collections of the Kansas State

Historical Society, 1915-1918, XIV (1918), 570-784.

Description of sod fences built by the Indians at the mission.

Harper's Weekly, X (January 27, 1866); X (April 21, 1866).

Describes sod fortifications along the Smoky Hill Trail in Kansas.

Newspapers

Ellis County News (Kansas), April 15, 1948; May 20, 1948.

Told how to build sod houses and clay stoves.

Kansas City Star (Missouri), March 26, 1934; July 18, 1935.

Tells of the sod recreation cabin belonging to the Boy Scouts in Meade, Kansas. A description of life in a sod house.

Oakley Graphic (Kansas), March 13, 1936; March 20, 1936; April 3, 1936.

Descriptions of sod buildings and dugouts at the stage stations along the Smoky Hill Trail in Western Kansas.

Topeka Capital (Kansas), September 6, 1932.

Describes the building of a sod house on the fairgrounds in Thomas County.

Ulysses News, (Kansas), April 10, 1941.

Description of a two-story sod house.

Kansas State Historical Society Scrapbooks

"Gove County Clippings," Volume 1, pp. 56-57.

Describes a sod house which was modernized.

"Kansas Descriptions, Clippings," Volume 1, pp. 170, 180-183.

Descriptions of sod houses and how they were made.

"Kansas Historic Houses"

Tells of life in a sod house, and some that were still standing.

"Kansas History, Clippings," Volume 5, p. 237.

Discussion of the passing of the sod house.

"Kansas Reminiscences, Clippings," Volume 4, pp. 123-125.

Description of dugouts and sod buildings, how they were built, and some of the ways in which they were used.

"Kansas Reminiscences, Clippings," Volume 5, p. 73.

Describes life in a sod house and some of the pests found there.

"Kansas Scrapbook, Biography," Volume 7, p. 245.

Description of the sod house and of the sod chapel north of Hays, Kansas.

"Kansas State Historical Society, Scrap-Book," Volume 12, p. 161.

Tells of plans to construct a sod house in the Historical Society Library.

"Meade County, Clippings," Volume 1, pp. 22-23.

Gives some of the materials used in building a sod house.

"Minnesota History," Volume 12, pp. 136-137.

Describes a frame building which was covered with a layer of sod.

"Phillips County, Clippings," Volume 2.

Pictures and description of sod houses.

"Scott County, Clippings," Volume 1, pp. 73-81.

Tells of many sod houses that were still standing.

"Seward County, Clippings," Volume 1, p. 207.

Tells of the material used in constructing a sod house.

"Sherman County, Clippings." Volume 1, p. 219.

Tells of a sod house in which water had never frozen.

"Stafford County, Clippings," Volume 1, pp. 163-169.

Describes the sod house on the Volker Farm.

Manuscripts

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A typed account of the building of a sod house.

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A typed account of the building of a sod house.

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Rush, Arthur Dewey, "The Community of Haviland, Kansas, Its Early History and Development." Unpublished Master's Thesis, Fort Hays Kansas State College, Hays, Kansas, 1942. 90 pp.

History of the sod church in Haviland, Kansas.

Schamber, Clarence A., "The Evolution of Schools in Phillips County, Kansas." Unpublished Master's Thesis, Fort Hays Kansas State College, Hays, Kansas, 1949. 130 pp.

Contains an account of a sod church that was destroyed by two fighting buffalo.

Toothaker, Mrs. Pearl, "Sod Houses in Sheridan County."

A typed account of life in sod houses, and how they were constructed.

Woodward, Ira H., "Sod Church at Haviland, Kiowa County, Kansas."

A typed account from Mrs. Benj. O. Weaver, Mullinville, Kansas, taken from the written records of Ira H. Woodward.

Letters

Albertson, Geo. S., Hill City, Kansas, March 15, 1950.

Described the building of a sod schoolhouse.

Baugher, E. D., Kinsley, Kansas, February 14, 1950.

Told of building a mule stable and blacksmith shop out of sod.

Beougher, Merlyn E., Gove, Kansas, February 17, 1950.

Interesting description of the sod houses in Gove County, Kansas.

Berg, Walter, Norcatur, Kansas, February 26, 1950.

Told of a sod house still occupied in Wichita County, Kansas.

Blume, W. A., Spokane, Washington, February 24, 1950.

Described early sod houses near Ludell, Kansas.

Cole, Mrs. John, Bazine, Kansas, February 7, 1950.

Tells of experience teaching in a sod schoolhouse.

Cox, W. Henry, Hanston, Kansas, November 12, 1949.

Important points in building a sod house, tells how windows were held in place.

Cressler, W. A., Hoxie, Kansas, February 21, 1950.

Informative letter on construction of sod buildings.

Derby, George C, Sublette, Kansas, February 20, 1950.

Interesting letter concerning sod houses, Haskell County, Kansas.

Elias, A. E., LaCrosse, Kansas, February 9, 1950.

Wrote of early sod houses in Rush County, Kansas.

Epperson, Elmer, Scott City, Kansas, February 2, 1950.

Reported no sod houses occupied in Scott County.

Frazier, H. C., Protection, Kansas, February 19, 1950.

Interesting account of sod buildings.

Hedge, Miss Emma, Hoxie, Kansas, February 14, 1950.

Suggested people to contact in Sheridan County for information.

Hickok, Dr. Galen R., Brownsville, Texas, March 26, 1950.

Former resident of Grant County, Kansas. Informative letter concerning sod houses.

Hickok, Mrs. Lora M., Brownsville, Texas, March 20, 1950.

Reported no sod houses in Grant County, Kansas.

Hollinger, D. K., Russell, Kansas, March 4, 1950.

Account of sod houses, described how sod was laid.

Hopson, Mrs. Dan, Phillipsburg, Kansas, April 30, 1949.

Described ruins of sod houses in Ellsworth County.

Hughes, W. F., Stockton, Kansas, February 11, 1950.

Concerning sod houses in Rooks County.

Johnson, Mrs. John W., Herndon, Kansas, March 17, 1950; April 11, 1950.

Information about their sod house in which they are still living.

Kuska, J. B., Colby, Kansas, November 6, 1949.

Wrote concerning some sod houses still in use.

Lupton, Mrs. J. S., Cimarron, Kansas, February 21, 1950.

Informative account of sod houses in Gray County.

Madigan, Frank, Wallace, Kansas, January 30, 1950.

Told of several sod houses still in use in Wallace County.

Parham, W. M., Logan, Kansas, February 14, 1950.

Interesting account on sod houses, told of those in Phillips County.

Paulsen, Mrs. Rex, Palo Alto, California, March 6, 1950.

Recent sod house dweller in Scott County, Kansas.

Pulver, Florence, Osborne, Kansas, March 7, 1950.

Described early sod houses in Osborne County.

Querbach, William J., Lancaster, California, February 20, 1950.

Described the early plows, and told how fireplaces were built. Home address is Hanston, Kansas.

Schmidt, H. F., Dodge City, Kansas, March 6, 1950.

Told of the early sod houses in Ford County.

Smith, Miss Lura S., Meade, Kansas, March 17, 1950.

Told of sod houses in Meade County. Described their house which was a story and half sod house.

Smith, R. L., Hugoton, Kansas, March 27, 1950.

Described early sod buildings in Stevens County. Told of a two story sod house.

Sramek, Anselm, Atwood, Kansas, February 28, 1950.

Told of the sod houses still in use in Rawlins County.

Swink, Frank, Hugoton, Kansas, February 20, 1950.

Informative letter concerning sod houses.

Teeters, Jesse L., Goodland, Kansas, January 27, 1950.

Interesting letter about sod houses in Sherman County.

Terrell, Jennie M., Logansport, Indiana, February 16, 1950.

Former resident of Graham County, Kansas, in 1881.

Terrell, Willie, Logansport, Indiana, February 16, 1950.

Described the building of a sod house.

Toothaker, Mrs. Pearl, Hoxie, Kansas, March 28, 1950.

Locations of sod houses in Sheridan County.

Vance, J. D., Coldwater, Kansas, February 13, 1950.

Wrote concerning sod houses in Comanche County.

Van Pelt, J. E., Great Bend, Kansas, February 23, 1950.

Wrote of sod houses in Barton County, a good description of the construction of a dugout.

Volker, Mrs. Mamie, Zenith, Kansas, January 31, 1950.

Interesting account of their sod house which stood for many years in Stafford County.

Weaver, Mrs. Benj. O., Mullinville, Kansas, February 20, 1950.

Secretary of the Kiowa County Historical Society, of great aid in locating materials and pictures.

Personal Interviews

Addison, Mrs. Nellie I., Hays, Kansas, April 3, 1950.

Provided materials on the sod chapel that formerly stood north of Hays, Kansas.

Aistrup, Mrs. T. C., Hanston, Kansas, November 4, 1949.

Interesting account of life in a sod house.

Baldrey, H. John, Hanston, Kansas, February 4, 1950.

Informative account of the construction of sod buildings.

Baldrey, Lewis F., Jetmore, Kansas, November 24, 1949.

Interesting account of the construction of sod buildings.

Beeson, Merritt L., Dodge City, Kansas, February 4, 1950.

Has many pictures of sod buildings in his museum.

Cobb, Paul R., Hays, Kansas, November 8, 1949.

Provided pictures of sod houses and some information.

Cox, W. Henry, Hanston, Kansas, November 6, 1949.

Former builder of sod houses, valuable information.

Fellers, Mrs. J. D., Hays, Kansas, April 5, 1950.

Information concerning the sod chapel north of Hays, Kansas.

Glaze, C. V., Hays, Kansas, February 2, 1950.

Told of the construction of sod houses, and the use of sod on the outside of frame buildings.

Housman, Charlie I., Jetmore, Kansas, November 24, 1949.

Described the construction of sod buildings.

Housman, Mrs. Ida A., Jetmore, Kansas, November 24, 1949.

Told of life in a sod house.

Hubbell, L. W., Jetmore, Kansas, November 4, 1949.

Described early sod houses, and teaching school in a sod building.

Lingenfelder, John, Hanston, Kansas, November 5, 1949.

Informative account of the construction of sod buildings.

Maranville, Lea, Ness City, Kansas, November 4, 1949.

Of aid in locating early settlers.

Massie, Miss Martha, Colby, Kansas, January 16, 1950.

Told of life in their sod house, Thomas County, Kansas.

McGimsey, Mrs. Eva, Hays, Kansas, February 20, 1950.

Interesting account of life in a sod house.

McGrath, Dr. Robert T., Hays, Kansas, January 27, 1950.

Described the sod house he lived in as a boy.

Meyer, Hilda, Phillipsburg, Kansas, March 3, 1949.

Information concerning her sod home.

Miller, Claude, Ness City, Kansas, November 4, 1949.

Interesting account of sod houses and schools.

Querbach, Mrs. Ellen J., Hanston, Kansas, February 4, 1950.

Described early sod houses and life in them.

Querbach, William J., Hanston, Kansas, November 23, 1949.

Informative account of the construction of sod houses.

Raynesford, Howard C., Ellis, Kansas, November 4, 1949.

Told of early sod houses in Ellis, Kansas.

Rittenhouse, Mrs. Lena, Hanston, Kansas, November 25, 1949.

Told of life in the sod house.

Rumford, Everett, Dodge City, Kansas, November 4, 1949.

Described the building of sod houses in Southwest Kansas.

Rumford, Mrs. Odella, Dodge City, Kansas, November 4, 1949.

Described the construction of sod houses, told of interesting happenings in sod houses.

Sternberg, George F., Hays, Kansas, March 1, 1950.

Interesting account of the construction of sod houses. Of aid in obtaining pictures of the early sod plows.

Wells, Thornton W., Hays, Kansas, February 9, 1950.

Informative account of the construction of sod houses and of life in them. Also told of the early schools.